Deer Lake Oil & Gas Inc.

Final Well Report

Western Adventure #2

June, 2003

Prepared by
Terry Brooker, P.Eng.

1.0 Introduction (2.2)

The Western Adventure #2 well was drilled by Deer Lake Oil & Gas Inc. (DLOG) to test the hydrocarbon potential of the Deer Lake basin. This exploratory oil and gas well is located about 21 km. north east of the town of Deer Lake, Newfoundland. DLOG has an interest in Exploration Permit #93-103 from Vinland Petroleum Inc.

The well initially spudded on February 16, 2002 with a Clearwater Drilling water well rig which drilled to 122.8 m and set and cemented 139.7 mm surface casing.

Operations resumed on August 20, 2002 when Petro Drilling Company Limited moved their Longyear Hydro 50 rig to the site. The well was continuously cored to 490.8 m, 114 mm intermediate casing was set and operations were then suspended. Drilling resumed on October 14, 2002 with continuous core to 1325.5 m. Cement plugs were set to suspend the well and the rig was moved off.

Core was recovered from 122.8 m to 1325.5 m. The core was continuously described on site and boxed for permanent storage. There were no logs or drill stem tests run on this well.

Well site drilling supervision was by Mr. Bill Williams and site geological work by Mr. Robert Taylor. Operations management was by Mr. Terry Brooker.

2.0 Map (2.3)

A map showing the location of the well and access road is included as Attachment #1.

3.0 General Information (2.4)

Well Name - Deer Lake Oil & Gas et al Western Adventure No. 2

Operator - Deer Lake Oil & Gas Inc.

Permit - Exploration Permit #93-103

Contractor - Petro Drilling Company Limited

Drilling Rig - Longyear Hydro 50

Location - Long 57° 12' 20.8"
Lat 49° 19' 6.59"

- Northing 5462724.24
Easting 485021.52

4.0 Difficulties and Delays (2.5)

See the drilling curve and time breakdown included as Attachments 2 (a and b), with details as follows:

-significant time was required to rig up the rig and BOP's, and drill out cement at the commencement of the coring operation (12 days).
- the well kicked at 249 m which required 12.5 hrs to circulate weighted mud and kill the well
- the well kicked at 489 m which was monitored and circulated over 4.5 days before casing was run and cemented to seal off the gas flow
- pipe was stuck at several depths (451, 469 and 475 m) while drilling out cement inside the 114 mm casing for total delays of 24 hours

5.0 Drilling Operations (3.0)

5.1 Ground Elev. - 88 m
KB Elev. - 91 m

5.2 Total Depth - 1325.5 meters

5.3 Spud Date - 0800 hrs, February 16, 2002

5.4 TD Date - 2100 hrs, November 7, 2002

5.5 Rig Release - 1200 hrs, November 9, 2002

5.6 Well Status - well is suspended with cement plugs and a well head.

5.7 Hole Size and Depths
- Conductor - Drive 219 mm pipe to 6.7 m
- Surface – Drill 206 mm hole to 122.8 m
- Intermediate - Core 123 mm hole to 490.8 m
- Main - Core 96 mm hole to 1325.5 m

5.8 Bit records

- 206 mm hole
1 A 6.7 – 122.8m Hammer
116.1 m in 19 hrs, 1.22 m/hr

- 123 mm hole
1 B 122.8 – 490.8 m, serial # 24990-01
368 hrs in 95 hrs, 3.9 m/hr, 3000 pds, 6-800 rpm

5.0 Drilling Operations – Bit Records (continued)

- 96 mm hole

2	drill cement 448-488 m, Florida S-7, serial # sk-12604 40 m in 26 hrs, 1.54 m/hr, 1-2000 pds, 3-600 rpm
3	488 m Stonebill mill, serial # 2x-0132 mill 5 hrs, 1-2000 pds, 3-600 rpm
4	drill cement 488-496m , Shark 9, serial # 598-L04 8 m in 15.5 hrs, 0.52 m/hr, 1-2000 pds, 3-600 rpm
5	496 - 979 m Shark 7, serial # 44801-01 483 m in 232.5 hrs, 2.1 m/hr, 1500-2000 pds, 5-600 rpm
6	979 – 1291.5 m, Hobic, serial # 23132-06-7AA 312.5 m in 154 hrs, 2.0 m/hr, 5000 pds, 5-600 rpm
7	1291.5 – 1325.5 m, serial # 22715-04 34 m in 14 hrs, 2.4 m/hr, 5000 pds, 5-600 rpm

5.9 Casing and Cementing Record

- Conductor
  Drive 219 mm, 25.2 kg/m casing to 6.7 m
- Surface
  Run 139.7 mm, 21.1 kg/m PW casing to 122.8 m
  Cement with 3.9 m^3 Class G with 2 % $CaCl_2$, 200 l cement returns
- Intermediate
  Run 114 mm, 17.4 kg/m HW casing to 490.8 m
  Cemented with 1.3 m^3 Class G with 40 l dispersent, 0.5 l D149 and 10 l antifoam, 150 l cement returns
- Main
  Suspension plugs – 240 kg Class G set 1295 m to 1325 m
  – 250 kg Class G set 455 m to 488 m

5.10 Sidetracked Hole

There was no sidetracked hole.

5.11 Drilling Fluid

The well was drilled with a simple low viscosity mud with Maytex 1200 and 2000 as the viscosifiers. Mud weight reached a maximum density of 1175 kg/m^3 at 250 m.

5.12 Fluid Disposal

There were no problems with the mud system. The mud was checked and approved for on-site disposal.

5.0 Drilling Operations (continued)

5.13 Fishing Operations

The operation encountered some difficulty drilling out the cement in the HW casing as the pipe stuck on several connections with the cement breaking off and jamming inside the pipe. On a trip from 488.2 m the bit and reaming shell were left in the hole. Attempts to screw back in were unsuccessful and it was necessary to mill up the junk.

5.14 Well Kicks

The well was drilling at 249.3 m when it kicked. The well was shut in and measured SIDP – 700 kPa and SICP – 1400 kPa. Mud weight was increased to 1175 kg/m^3 and circulated to kill well over 12.5 hours.

A small flow was detected at 489 m while preparing to run casing. SIDP 965 kPa and SICP – 1550 kPa. The pressures bleed off to zero in under 30 seconds. The pressures were monitored over 4.5 days before casing was run and cemented (with gas block additives) to seal off the pressure.

At total depth, after the suspension plugs were set and the rig was moving off, the well was found to have a pressure of 1380 kPa. This pressure has been regularly monitored and has remained steady at 1450 Kpa.

5.15 Formation Leak-Off Tests

A leak off test was conducted at 130 m with PW casing set to 122.8 m. With water (1000 kg / m^3) in the hole, surface pressure was built to 1535 kPa with no leak-off, equivalent to a leak off gradient of 22.2 kPa / m.

A leak off test was conducted at 496 m with HW casing set to 490.8 m. With mud (1140 kg / m^3) in the hole, surface pressure was built to 5280 kPa with no leak off, equivalent to a leak off gradient of 21.7 kPa / m.

5.16 Time Distribution

A detailed time breakdown is included as Attachment # 2.

5.17 Deviation Plot

No continuous directional survey was run on this well. The following single shots were taken 121 m - 1°, 400 m – 1.4 °, 772 m – 3 °, 1057 m – 5 °, 1203 m – 5 °, 1225 m – 4 °.

5.0 Drilling Operations (continued)

5.18 Suspension / Abandonment Plugs

Suspension plugs – 240 kg Class G set 1295 m to 1325 m
– 250 kg Class G set 455 m to 488 m

Fluid left in the hole is drilling mud with a density of 1140 kg/m^3.

5.19 Well Schematic

A schematic showing hole sizes and depths, casing sizes and depths, and cementing details is included as Attachment #3.

6.0 Geological (4.0) (Attachment #4).

The Western Adventure #2 well spudded in the Rocky Brook Formation, Deer Lake Group, and ended some 1325.5 m later in metamorphosed sediments of Reluctant Head Formation, St. George Group.

The predominantly sandy North Brook Formation was the primary target for this well. No significant porosity was found within these arkosic sands. The well encountered the Ordovician Carbonate Platform at a depth of 761.5 m which was much shallower than originally thought; drilling continued to a depth of 1325.5 m. This interval contained small amounts of dissolution and fracture porosity. Minor Gas shows were encountered throughout the well; the well has not yet been logged.

Deer Lake Group (Carboniferous (Visean); 0 m to 761.5 m)

- Rocky Brook Formation (0 m to 440 m) : Red to Brown siltstones with grey and black shales
- North Brook Formation (440 m to 761.5 m) : Siltstone and Sandstone with occasional conglomeratic stringers and beds.

Carbonate Platform

St. George Group (Ordovician ; 761.5 m to 964 m)

- Catoche Formation (761.5 m to 800.5 m) : Limestone Marble, minor shale stringers.
- Boat Harbour Formation (800.5 m to 920.0 m) : Predominantly limestone Marble with common dolomite marble. Occasional shale beds and laminations, dolomitic sections, typically cherty.

- Watts Bight Formation (920.0 m to 964 m): Limestone Marble with minor shale laminations.

Port au Port Group (Cambrian; 964 m to 1325.5 m)

- Berry Head Formation (964 m to 1062.4 m) : Predominantly dolomite marble with and upper sequence dominated by limestone marbles and cherts.
- Petit Jardin Formation (1062.4 m to 1228.5 m) : Predominantly grey to dark grey dolomite marble with some vuggy and fracture porosity.
- Reluctant Head Formation (1228.5 m to 1325.5 m) : Interbedded limestone marble and phylitte, very homogeneous.

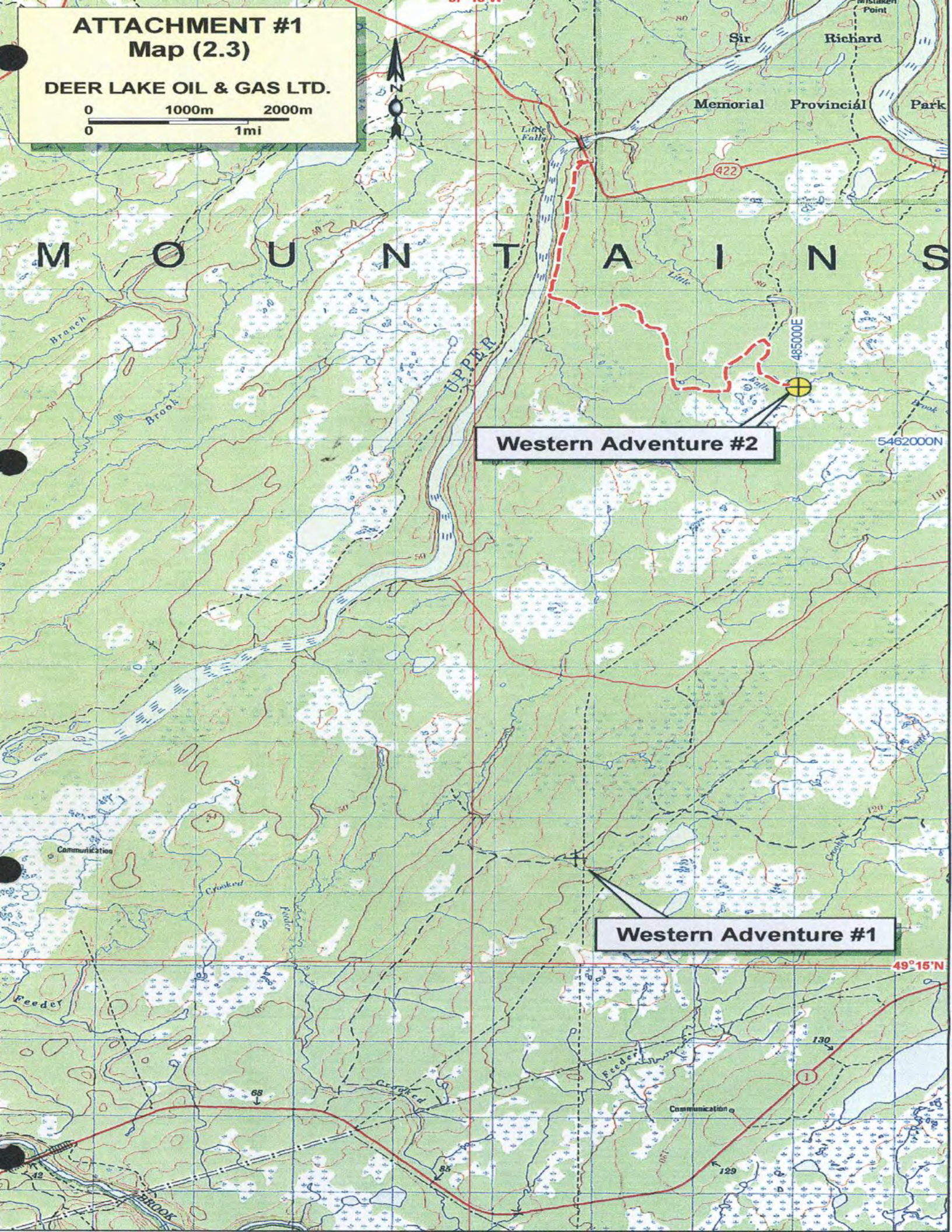
7.0 Well Evaluation (5.0)

7.1 Logging Program

No open hole electric logs were run.

7.2 Drill Stem Tests

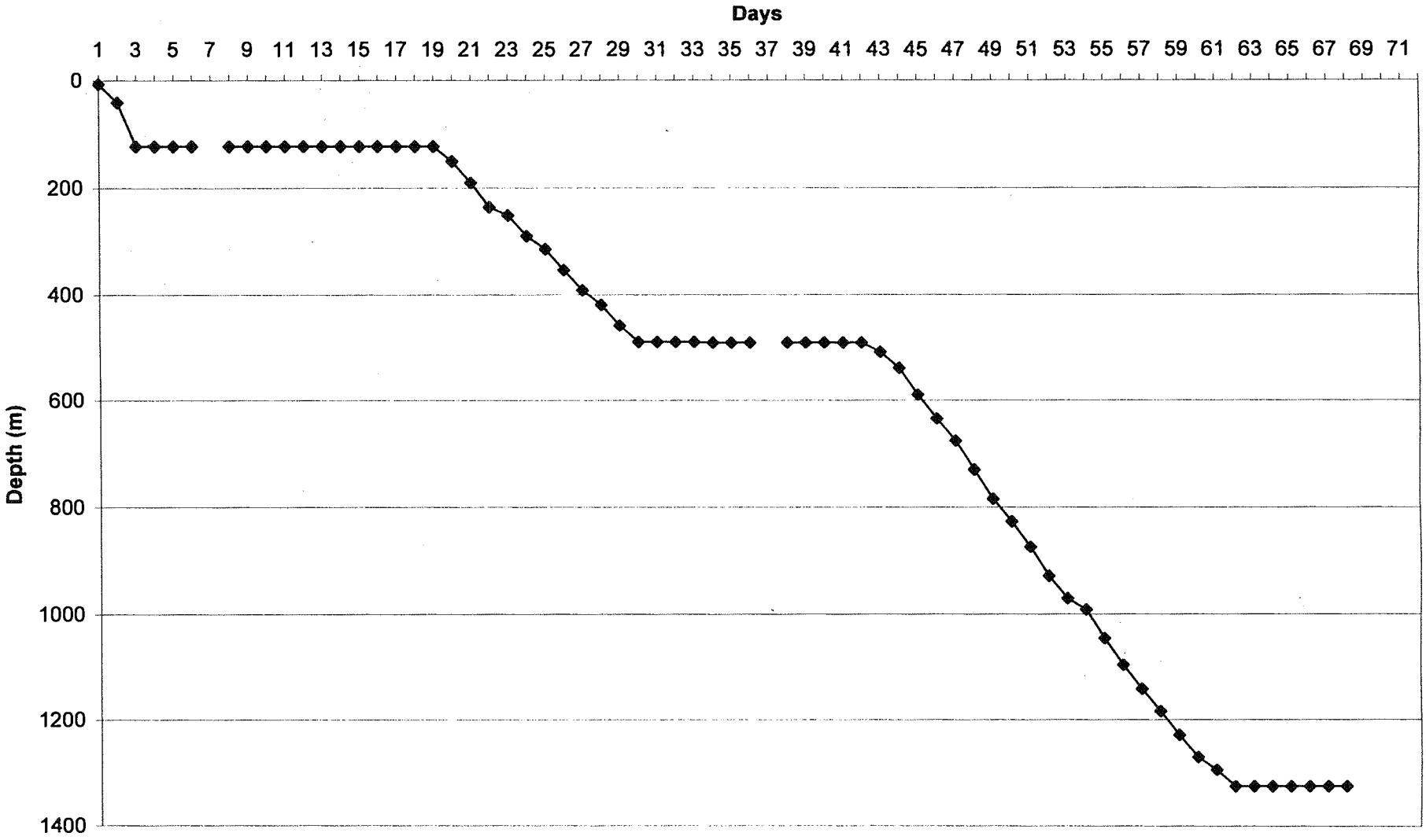
No Drill Stem Tests were run.


ATTACHMENT #1
Map (2.3)
DEER LAKE OIL & GAS LTD.
0 1000m 2000m
0 1mi
N
Sir Richard
Memorial Provincial Park
422
M O U N T A I N S
Little Falls
Branch Brook
UPPER
485000E
5462000N
Western Adventure #2
Western Adventure #1
49°15'N
Communication
Crooked
Feeder
130
129
68
85
42
1

ATTACHMENT # 2a

Drilling Curve
DLOG WA #2

Western Adventure # 2
(Overall Feb. 15 to Nov. 17, 2002)



Western Adventure #2

Time Breakdown
DLOG WA #2

Time Distribution - Feb. 15 to Feb. 20, 2002 (Spud to 122 m)

(Clearwater water well rig)

	Depth	Total Hrs.	RU/TO	Drill/Core	Reaming	Cond/Circ	Tripping	Pull Core	Survey	Repair Rig	DST	Logging	Run Csg	Cementing	WOC	WOO	Nu BOPs Test	Drill out	Misc	Shut Down	Fishing	Comments
Feb 15/02	6.7	12	12																1			
Feb 16/02	41.1	12.5		11.5															0.5			
Feb 17/02	122.8	12		11.5																		
Feb 18/02	122.8	10							7.5	2.5												
Feb 19/02	122.8	12											7	5								
Feb 20/02	122.8	12	12																			
Total Hours		**70.5**	**24.00**	**23.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.50**	**2.50**	**0.00**	**0.00**	**7.00**	**5.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.50**	**0.00**		
Time breakdown		**100.0%**	**34.04%**	**32.62%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**10.64%**	**3.55%**	**0.00%**	**0.00%**	**9.93%**	**7.09%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**2.13%**	**0.00%**		

Time Distribution - Aug. 20 to Sept. 17, 2002 (122.8 m to 490.8 m)

(Petro Drill rig)

	Depth	Total Hrs.	RU/TO	Drill/Core	Reaming	Cond/Circ	Tripping	Pull Core	Survey	Repair Rig	DST	Logging	Run Csg	Cementing	WOC	WOO	Nu BOPs	Drill out	Misc	Shut Down	Fishing	Comments
Aug 20/02	122.8	12	12																			
Aug 21/02	122.8	12	12																			
Aug 22/02	122.8	12	12																			
Aug 23/02	122.8	12	12																			
Aug 24/02	122.8	12	12																			
Aug 25/02	122.8	12	12																			
Aug 26/02	122.8	12	12																			
Aug 27/02	122.8	12	12																			
Aug 28/02	122.8	12	12																			
Aug 29/02	122.8	24	6													18						
Aug 30/02	122.8	24					3									9		11	1			
Aug 31/02	122.8	24				3	2.5			2.5								14.5	1.5			Safety Mtg
Sept 1/02	150.5	24		15.5		4												3.5	1			
Sept 2/02	190.2	24		21						3									1.5			
Sept 3/02	235.9	24		22.5																		Circ Kick - air ??
Sept 4/04	251.2	24		8.5		12.5											3					
Sept 5/02	290.7	24		23.5															0.5			
Sept 6/02	315	24		11				1.5		1							10.5					
Sept 7/02	354	24		23															1			
Sept 8/02	391.4	24		23.5															0.5			
Sept 9/02	418.8	24		13		0.5			0.5	10												
Sept 10/02	458	24		23						1												Monitor shut in pressures
Sept 11/02	489	24		15.5		6.5				2												Monitor shut in pressures
Sept 12/02	489	24				24																Monitor shut in pressures
Sept 13/02	489	24				24																Monitor shut in pressures
Sept 14/02	489	24				24																Monitor shut in pressures
Sept 15/02	490.8	24		1		22.5		0.5														
Sept 16/02	490.8	24											6	6	12							
Sept 17/02	490.8	24													24							Monitor shut in pressures
Total Hours		**588.0**	**114.00**	**201.00**	**0.00**	**121.00**	**5.50**	**2.00**	**0.50**	**19.50**	**0.00**	**0.00**	**6.00**	**6.00**	**36.00**	**27.00**	**13.50**	**29.00**	**7.00**	**0.00**	**0.00**	
Time breakdown		**100.0%**	**19.39%**	**34.18%**	**0.00%**	**20.58%**	**0.94%**	**0.34%**	**0.09%**	**3.32%**	**0.00%**	**0.00%**	**1.02%**	**1.02%**	**6.12%**	**4.59%**	**2.30%**	**4.93%**	**1.19%**	**0.00%**	**0.00%**	

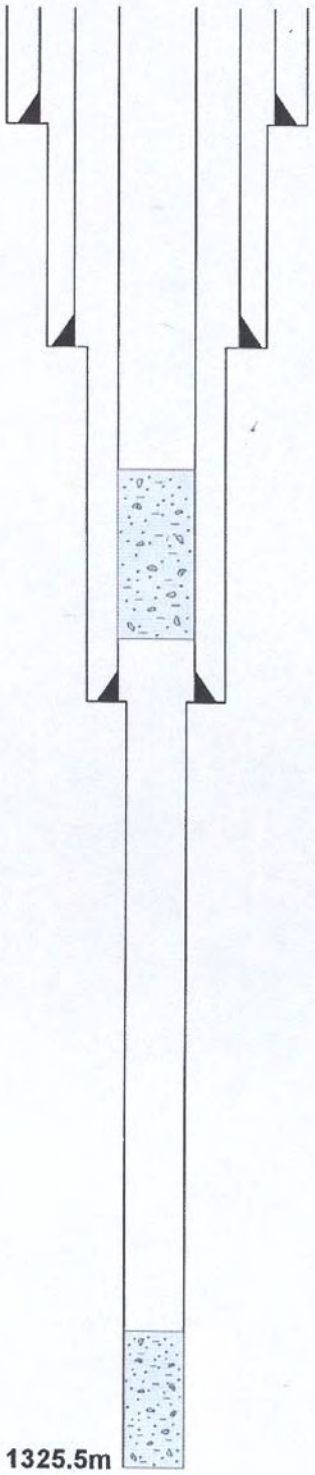
Time Distribution - Oct. 14 to Nov. 17, 2002 (490.8 m to FTD 1325.5 m)

(Petro Drill rig)

	Depth	Total Hrs.	RU/TO	Drill/Core	Reaming	Cond/Circ	Tripping	Pull Core	Survey	Repair Rig	DST	Logging	Run Csg	Cementing	WOC	WOO	Nu BOPs	Drill out	Misc	Shut Down	Fishing	Comments
Oct 14/02	490.8	24	17				7														1.5	
Oct 15/02	490.8	24		0.5	12		10															
Oct 16/02	490.8	24				0.5				6								17.5				
Oct 17/02	490.8	24					10											14				
Oct 18/02	490.8	24					5														19	
Oct 19/02	508.5	24		5	4.5		4.5											5			5	
Oct 20/02	538.5	24		19						5												
Oct 21/02	589.5	24		24																		
Oct 22/02	634.5	24		24																		
Oct 23/02	676.5	24		23						1												
Oct 24/02	730.5	24		24																		
Oct 25/02	784.5	24		22					2													
Oct 26/02	826.5	24		17.5						6.5									0.5			
Oct 27/02	874.5	24		23.5															0.5			
Oct 28/02	928.5	24		23.5																		
Oct 29/02	970.5	24		19						5												
Oct 30/02	991.5	24		13			11															
Oct 31/02	1045.5	24		24																		
Nov 1/02	1096.5	24		22					2												2	
Nov 2/02	1141.5	24		22																		
Nov 3/02	1183.5	24		24																		
Nov 4/02	1228.5	24		22					2													
Nov 5/02	1270.5	24		20.5						3.5												
Nov 6/02	1294.5	24		11.5			11			1.5												
Nov 7/02	1325.5	24		14		3.5		1.5	2					3								
Nov 8/02	1325.5	24	13											11								
Nov 9/02	1325.5	12	7				5															
Nov 17/02	1325.5	10	10																			
Nov 18/02	1325.5	11	11																			
Nov 19/02	1325.5	11	11																			
Nov 20/02	1325.5	12	12																			
Total Hours		**680.0**	**81.00**	**398.00**	**16.50**	**4.00**	**63.50**	**1.50**	**8.00**	**28.50**	**0.00**	**0.00**	**0.00**	**14.00**	**0.00**	**0.00**	**0.00**	**36.50**	**1.00**	**0.00**	**27.50**	
Time breakdown		**100.0%**	**11.91%**	**58.53%**	**2.43%**	**0.59%**	**9.34%**	**0.22%**	**1.18%**	**4.19%**	**0.00%**	**0.00%**	**0.00%**	**2.06%**	**0.00%**	**0.00%**	**0.00%**	**5.37%**	**0.15%**	**0.00%**	**4.04%**	

WELL TOTALS

Total Hours	**1338.5**	**219.0**	**622.0**	**16.5**	**125.0**	**69.0**	**3.5**	**16.0**	**50.5**	**0.0**	**0.0**	**13.0**	**25.0**	**36.0**	**27.0**	**13.5**	**65.5**	**9.5**	**0.0**	**27.5**
Time breakdown	**100.0%**	**16.36%**	**46.47%**	**1.23%**	**9.34%**	**5.16%**	**0.26%**	**1.20%**	**3.77%**	**0.00%**	**0.00%**	**0.97%**	**1.87%**	**2.69%**	**2.02%**	**1.01%**	**4.89%**	**0.71%**	**0.00%**	**2.05%**



Conductor Pipe
Drive 219mm 25.2 kg/m to 6.7m KB

Drill 206mm hole
to 122.8m

Surface Casing
140mm 21.1 kg/m
PW to 122.8m
cement w/3.9m^3 Cl G
plus 2% $CaCl_2$

Plug #2
488 - 455m
250 kg Cl G
cement

Core 123mm hole
to 490.8m

Intermediate Casing
114mm 17.4 kg/m
HW to 490.8m
cement w/1.3m^3 Cl G
plus 440 l gas block

Core 96mm hole
to 1325.5m

Plug #1
1325 - 1295m
240 kg Cl G
cement

T.D. 1325.5m

ATTACHMENT #3
Well Schematic (3.19)
DLOG WA #2

DEER LAKE OIL & GAS LTD.

ATTACHMENT # 4

Geological Report
DLOG WA # 2

Geological Wellsite Report

of

Western Adventure #2

Deer Lake Basin,
Western Newfoundland

Deer Lake Oil & Gas Incorporated
St. John's, Newfoundland

Prepared by: Robert Taylor, B.Sc.
November 26, 2002

Western Adventure #2

Geological Markers KB elev. = 91m

Formation	Depth (m) MD	Depth (m) Subsea
Rocky Brook Fm Brown Beds	216.00	-125.00
Rocky Brook Fm Lower Grey Beds	246.00	-155.00
Rocky Brook Fm Mottled Beds	330.00	-239.00
Rocky Brook Fm Red Silts	405.00	-314.00
North Brook Fm	440.00	-349.00
Catoche - North Brook Unconformity	761.50	-670.50
Boat Harbour	800.50	-709.50
Watts Bight	920.00	-829.00
Berry Head	964.00	-873.00
Total Depth	1335.50	-1244.50

LITHOLOGY STRIP LOG
WellSight Systems Inc.
Scale 1:240 (5"=100') Metric

Well Name:	Western Adventure #2		
Location:	5462724.24m N ; 485021.52m R		
Licence Number:	2002-120-02	Region:	Deer Lake Basin
Spud Date:		Drilling Completed:	07-11-02;2100h
Surface Coordinates:	n/a		
Bottom Hole Coordinates:	n/a		
Ground Elevation (m):	88.0m	K.B. Elevation (m):	91.0m
Logged Interval (m):	n/a To: n/a	Total Depth (m):	1325.5m
Formation:	Rocky Brook, North Brook		
Type of Drilling Fluid:	Matex, NaCl, and CaCl		

Printed by STRIP.LOG from WellSight Systems Inc. 1-800-447-1534 www.wellsight.com

OPERATOR

Company: Deer Lake Oil & Gas Inc.
Address: P.O. Box 5580
St. John's, NF
A1C 5W4

GEOLOGIST

Name: Robert Taylor
Company: Independent
Address: 95 Silver Springs Way NW
Airdrie, AB, T4B 2V4
403-804-2649

Cores

Hole continously cored from 128-488. Core size PQ or 85.0mm.

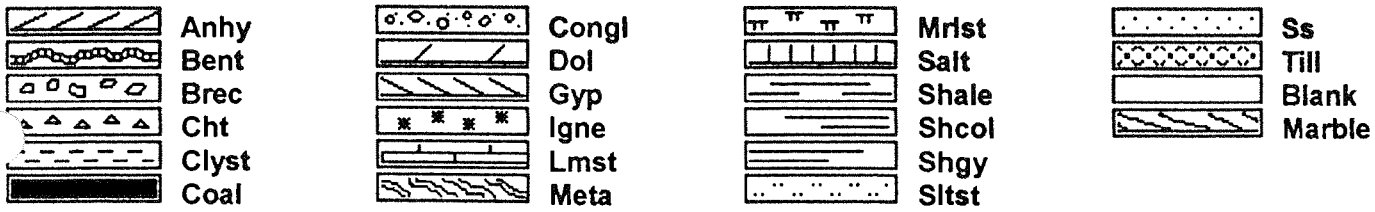
DSTs

n/a

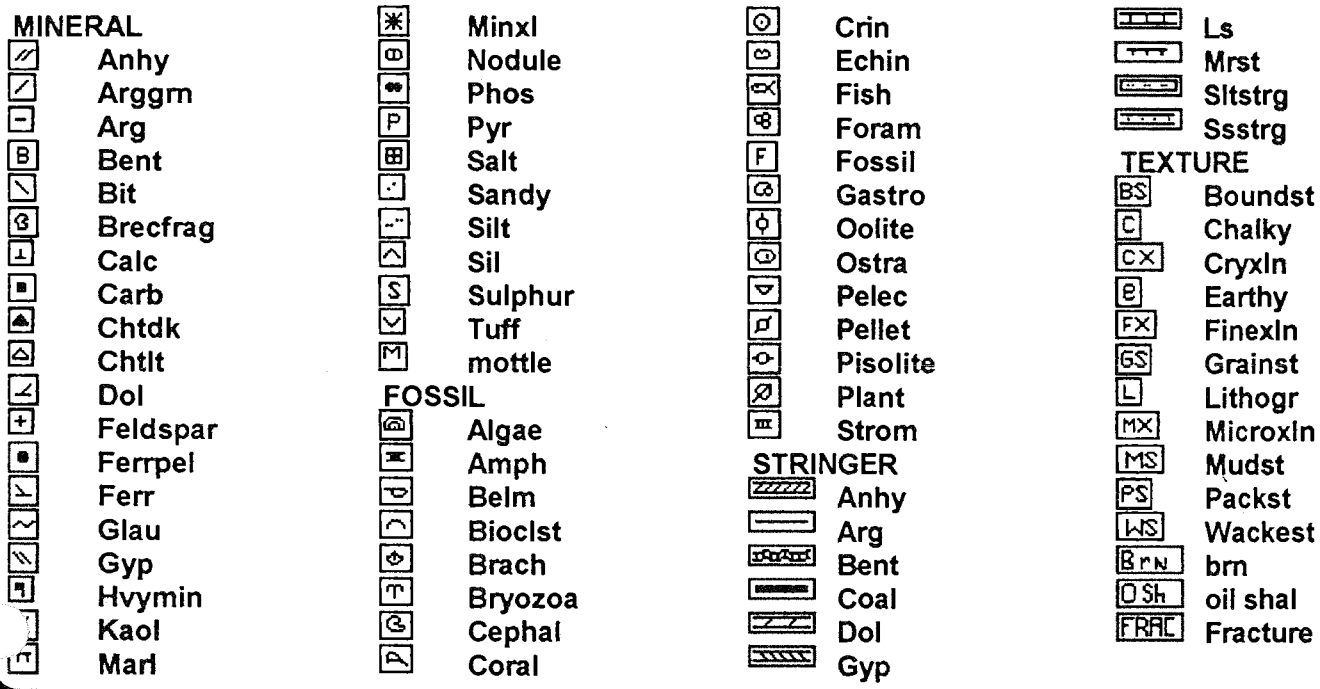
Comments

Surface Casing set @ 128m KB. by a Water Well Rig.

ROCK TYPES



ACCESSORIES



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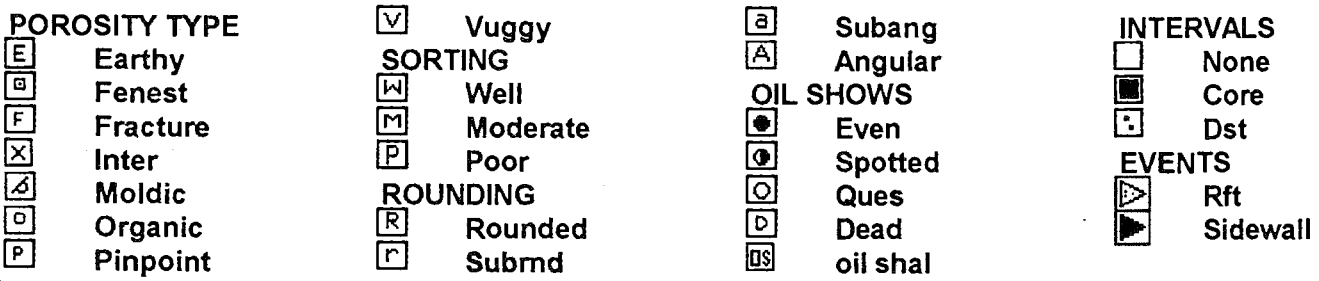
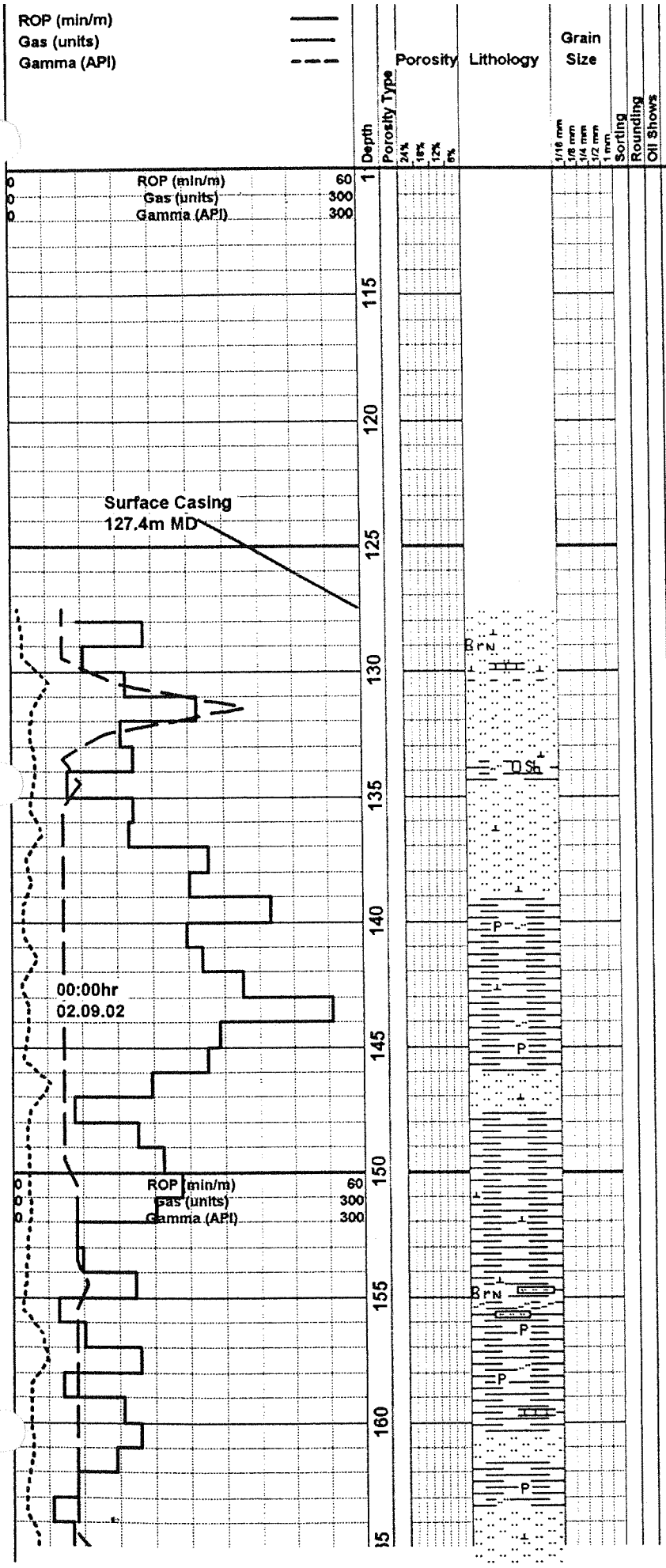




Geological Descriptions

127.38-128.15 SLTST:gn-gy, massive.

128.15-129.0 SLTST: purple to maroon, massive, sharp upper contact / gradational lower contact.

129.0-133.4 SLTST: gy- gn, mas, rr sdy ipt, rr v calc & LS ipt, mnr SH lam.

133.4-134.3 SH: blk - dk gy, low - mod quality oil shale, fair pet smell on heating, lam - bdd, mnr thin zones (1cm) of sof. sediment deformation.

134.3-139.0 SLTST: predly gy gn, occ grdg - v dk maroon purple, mnr low angle calc veninlets most along faults with slickenslides, occ shly, no vis structure v massive.

139.0-146.2 SH: dk gy, hrd, compact, occ calc strg, occ vf gr pyr.

146.2-147.4 SLTST: dk gy gn, massive, compact, hrd, com calc flecks.

147.4-154.45 SH: dk gy, compact, hrd, massive, mnr calc strg.

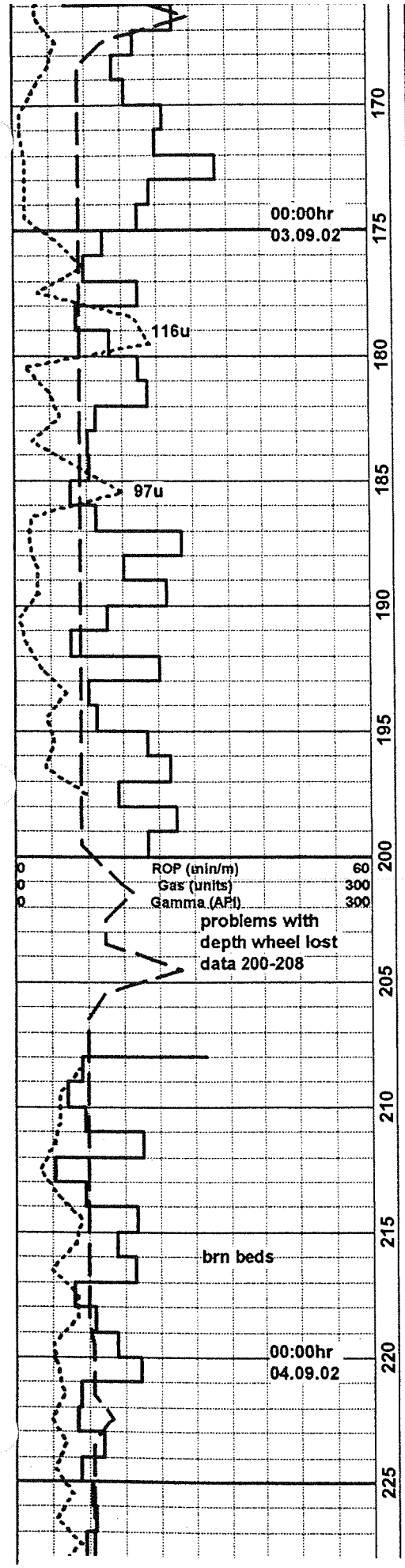
154.45-155.40 SLT/SH: maroon - purple - sl red ipt, massive, occ calc fleck.

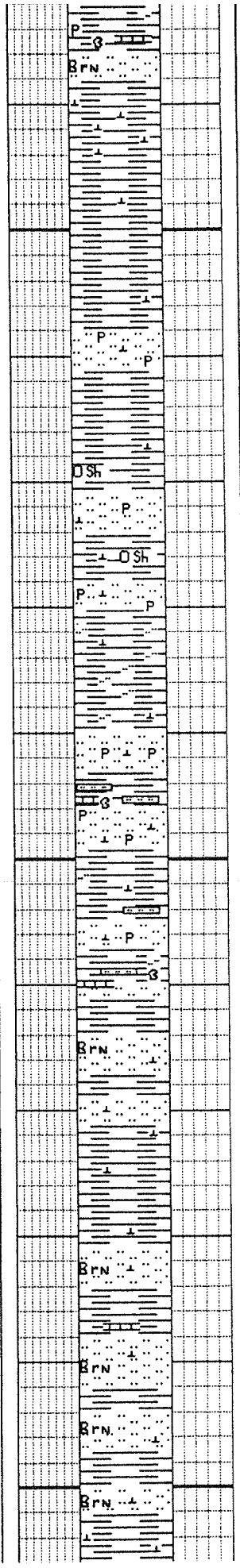
155.40-160.3 SH: dk gy, aa.

160.3-161.4 SLTST: maroon - purple, aa.

161.4-163.35 SH: dk gy, compact, hrd, occ vf gr pyr.

163.35-166.0 SLTST: maroon, massive, occ calc flecks, hrd





basal 15cm consists of LS CGL 1-2cm clasts, Clasts are locally derived LS of Carboniferious age.

167.7-169.05 SLTST: maroon - purple - brn, massive, occ calc fleck.

169.05-172.3 SH: interbedd and lam lt - dk gy, predly lam - bdd, occ massive, lt gy SH v calc and LS ipt, So=0.

172.3-175.5 SH:maroon - dusky brn, hrd, massive, occ calc flecks.

175.5-179.0 SH: SLTST:gy - sl gy gn, occ blk ipt, massive, calc veins with occ slickenslides at 178.8 & 176.8.

179.0-180.70 SLTST: gy gn, massive, occ pyr.

180.70-185.6 SH:dk gy - blk, bdd - lam, predly blk and organic rich near base, fair oil shale, So=0-10.

185.6-187.0 SLTST: gy gn, massive, com pyr.

187.0-188.7 SH: dk gy - blk, blk and organic rich near base, fair oil shale.

188.7-190.2 SLTST: gy - dk gy, mas, com pyr.

190.2-194.8 SH: dk gy - gy, occ sl gy gn, silty ipt, mas, v hrd.

194.8-196.3 SLTST:gy - gn, mas, com pyr, occ calc fleck.

196.3-198.24 SH: dk gy - blk, lam, varved, occ thinly bdd - lam siltst.

198.24-199.34 SLTST: gy, mas, com pyr, occ calc flecks.

199.34-202.40 SH: gy-blk, lam - bdd, com silty ipt, basal 20cm has up to 1cm LS clasts in a calc mud matrix, just above cgl mnr cross bedding.

202.4-203.74 SLTST: gy, mas, com pyr, occ calc fleck.

203.74-205.1 SH: dk gy - blk, lam - occ bdd, mnr flame structure, basal 20cm has similar LS aa.

205.1-205.6 SLTST:gy gn, occ calc fleck.

205.6-207.0 SH: dk gy - blk, mas, hrd.

207.0-208.50 SLTST: maroon - dusky brn, mas, hrd.

208.5-209.5 SH: blk- dk gy, mas, hrd, rr lam.

209.5-210.3 SLTST: gy gn, occ sl maroon, mas, occ calc

210.3-215.7 SH: dk gy - occ blk, occ silty ipt, silty 212.3-212.9 lam near base and top, mas in center.

215.7-216.5 SLTST: gy, mas, occ calc fleck.

216.5-217.1 SLTST: maroon - dusky brn, occ calc fleck, mas hrd.

217.1-218.9 SH: blk - gy, silty near top, limy near base, com bdd - lam.

218.9-221.1 SLTST: maroon - dusky brn, mas, mnr lam gy sh 1 m from top for 40cm.

221.1-222.1 SLTST:SH: gy - blk, lam - bdd, calc ipt.

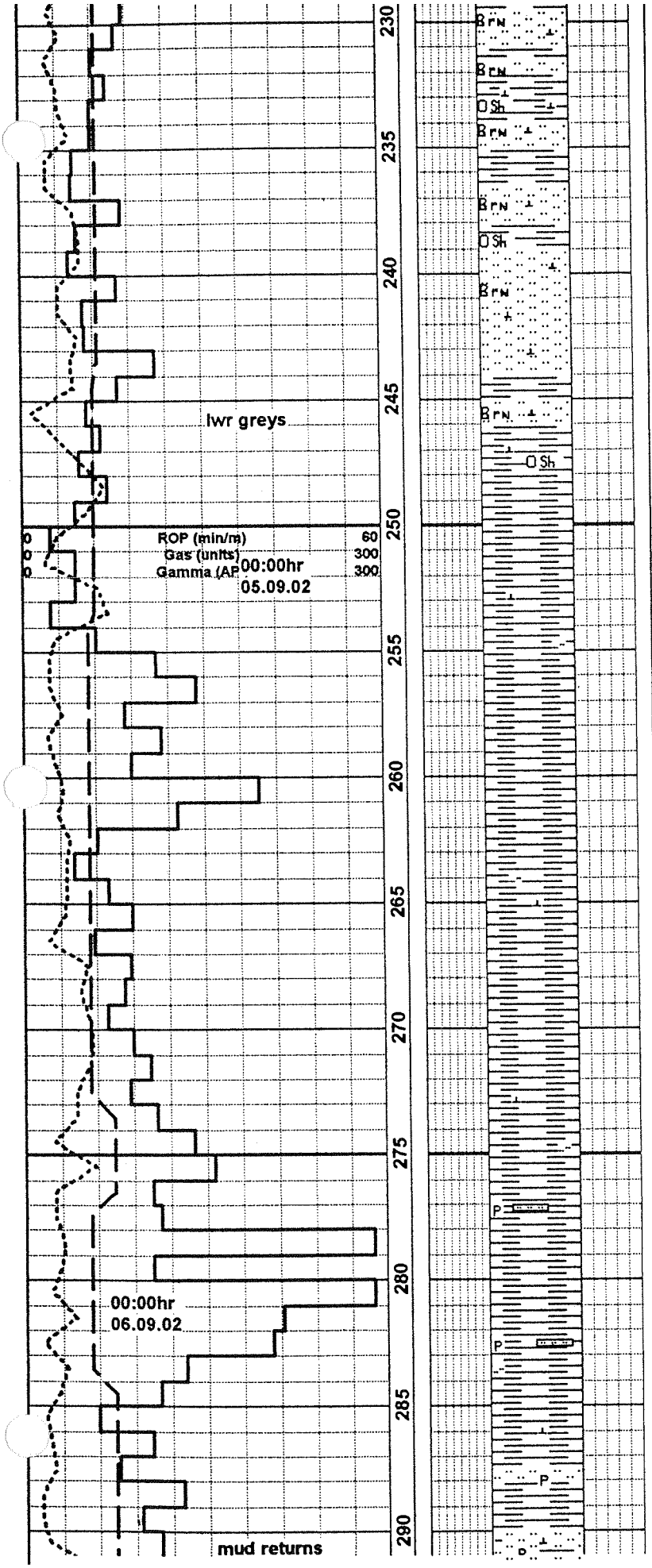
222.1-223.3 SLTST: maroon - brn, masssive, homogeneous

223.3-224.9 SH: dk gy - lt gy, lam - occ bdd, calc, So=0.

224.9-226.1 SLTST: maroon - brn, mas, com calc flecks.

226.1-228.1 SH:blk-gy, lam-bdd, calc ipt, So=0.

228.1-228.8 SLTST: maroon - brn. aa.



229.3-230.7 SLTST:brn, mas, occ calc fleck.

230.7-231.4 SH:gy - sl gy gn, lam - bdd.

231.4-232.1 SLTST: maroon, aa.

232.1-233.9 SH:gy-blk, lam - bdd, mnr thin Oil Shale, oil shale occasionally exhibits dull - bri yel dry flor, n flor cut, pos min flor i.e. LS or calcite.

233.9-235.0 SLTST brn-maroon, mas, gy gn at top of unit.

235.0-236.4 SH:gy-blk, occ thin Oil Shale lam, oil shale occasionally exhibits dull - bri yel dry flor, n flor cut.

236.4-238.2 SLTST: brn - maroon, aa.

238.2-239.3 SH: SH: dk gy - gy, aa, occ thin Oil Shale.

239.3-243.9 SLTST: predly brn - maroon, mnr gy, com calc flecks.

243.9-245.0 SH: gy - occ blk, lam-bdd, occ Oil Shale; 244.4 3-4cm thick lam vf gr LS SS, appears recrystalized, tt, n show.

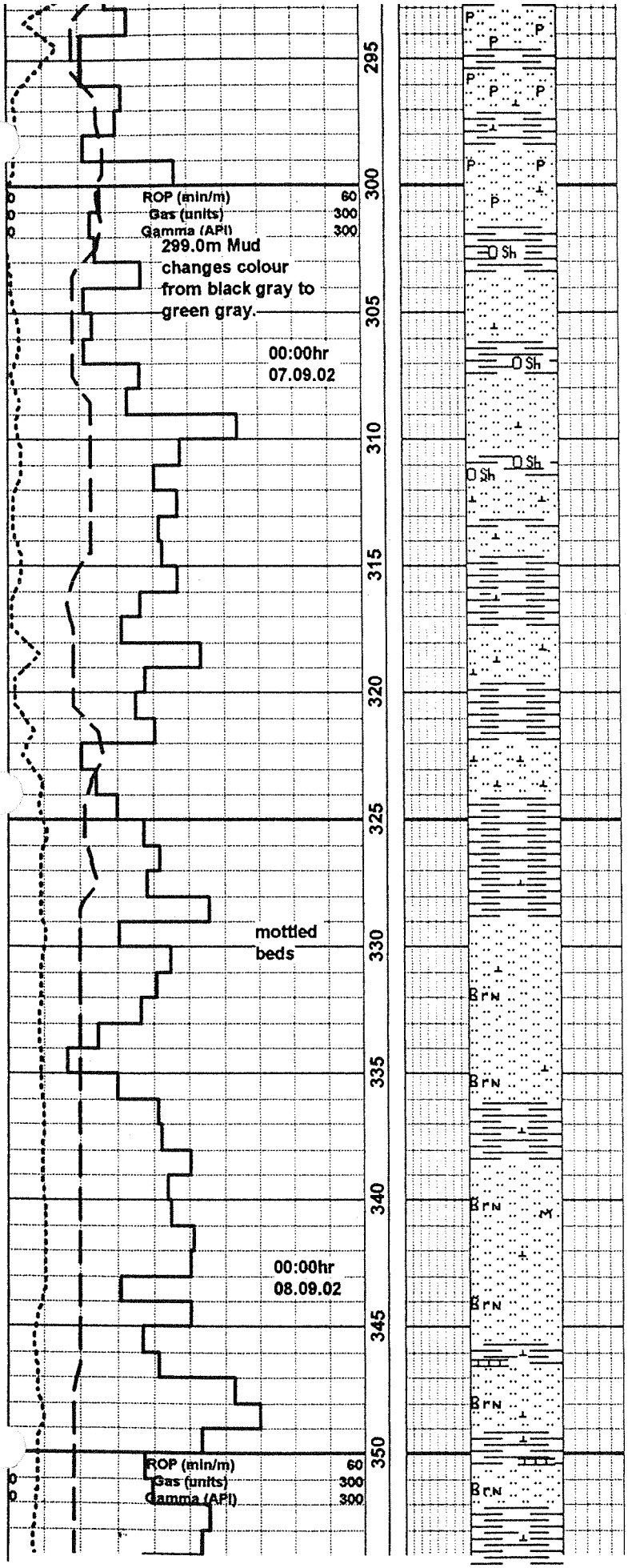
245.0-245.7 SLTST: brn, mas, com calc flecks.

245.7-248.2 SH: dk gy - blk, predly lam - bdd, occ Oil Shale near base, oil shale occasionally exhibits dull - bri yel dry flor, n flor cut, pos min flor i.e. LS or calcite.

248.2-287.7 SH: lt gy - dk gy, occ sl blue, mnr blk, massive - mnr lam, occ slty, 20-30cm sltst strg @ 277.0 & 282.9, rr thin lam Oil Shale, very homogeneous, hrd.

287.7-288.3 SLTST: gy - sl gy gn, mas, calc, com pyr.

288.3-290.1 SH: gy - dk gy, lam - bdd.



deformation, occ Oil Shale.

292.9-294.4 SLTST: gy gn, mas, com pyr.

294.4-295.5 SH: dk dk - lt gy, lam-bdd, So=0 - 10.

295.5-296.9 SLTST: gy gn, mas, com pyr.

296.9-297.6 SH: aa.

297.6-301.7 SLTST: gn gy, notable colour change, com pyr; broken core 302.0-302.5 / slicks and thin calc fractures.

301.7-303.3 SH: dk - lt gy, lam-bdd, mnr Oil Shale.

303.3-306.1 SLTST:gn gy, aa.

306.1-307.6 SH:dk - lt gy, carb rich layers, mnr lam Oil Shale near base.

307.6-310.6 SLTST: gn gy, mas, occ mottling.

310.6-311.3 SH: lt & dk gy, occ blk, carb beds, approx 30% of interval is intpreted as Oil Shale, Oil Shale beds up to

311.3-312.9 SLTST: gy gn, mas, occ calc flecks.

312.9-314.4 SH: dk - occ lt gy, lam - bdd, occ Oil Shale lam.

314.4-315.6 SLTST: gy gn, aa.

315.6-317.4 SH: gy, homogeneous, mas.

317.4-318.9 SLTST:gy gn, mas, com calc flecks.

318.9-320.3 SH: dk gy - sl maroon, mas.

320.3-322.0 SH: dk gy - lt gy, mnr calc nod, occ calc bed, lam - bdd.

322.0-323.9 SLTST: gy, mas, abt calc flecks.

323.9-328.8 SH: gy - dk gy, occ bdd - lam, predly mas, mnr lam Oil Shale.

328.8-335.9 SLTST: brn - maroon, mas, occ calc fleck, rr lam, rr bdd & sdy lpt, mnr mottling.

335.9-338.4 SH:gy-sl gy blue, hrd, bdd-lam.

338.4-345.60 SLTST: brn, mas, mnr calc flecks, mnr mottling.

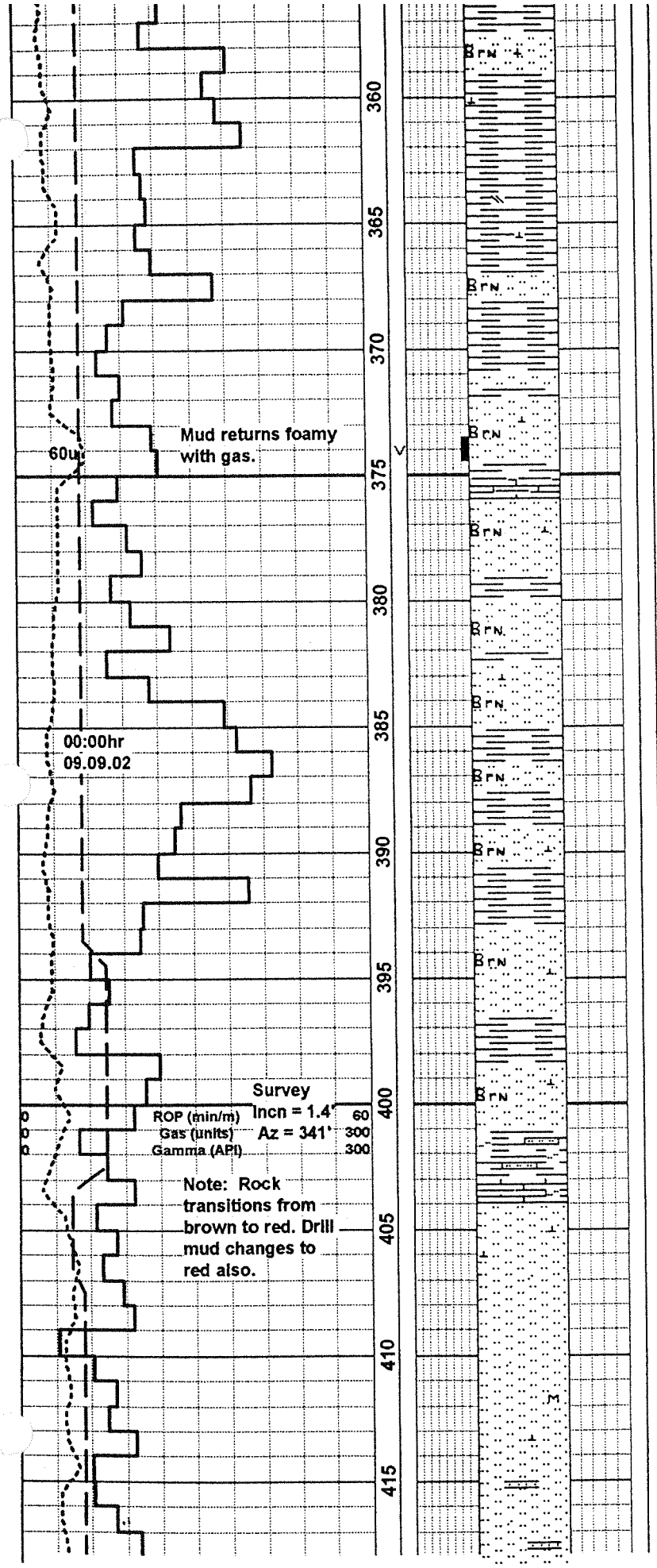
345.6-346.7 SH: gy - dk gy, lam - bdd, lam & bdd often disturbed by 3-5cm calc nod in basal 40cm.

346.7-349.1 SLTST: brn, aa.

349.1-350.4 SH: gy - dk gy, aa.

350.4-351.8 SLTST: brn, mas, v homogeneous, rr calc fleck.

351.8-354.5 SH: gy - dk gy, predly mas, mnr lam.



357.4-358.1 SLTST: brn, mas, v com calc flecks.

358.1-367.0 SH: gy - dk gy, occ sl blue gy, predly mas / mnr lam, 1-2mm gypsum strg at 364.1m.

367.0-368.2 SLTST: brn, mas, com calc flecks.

368.2-371.3 SH: gy-dk gy, predly mas / mnr lam.

371.3-371.7 SLTST: aa.

371.7-372.2 SH: dk gy, aa.

372.2-374.6 SLTST: brn, mas, com mica, p vuggy por (1-3%), vugs com completely filled with qtz, occ vug infill has wh calc core, n show.

374.6-376.1 LS: gy, grades upward into limy shale, predly pisolitic i.e. abt soft sediment deformation and clasts up to 8cm.

376.1-379.2 SLTST: brn - red, predly mas, mnr thin bdd -

379.2-380.0 SH: gy, wk lam, predly mas.

380.0-381.7 SLTST: brn, wk lam, predly mas, rr L vf gr SS lam.

381.7-382.5 SH: gy - sl gy gn, wk lam.

382.5-384.9 SLTST: brn, mas, v homogeneous.

384.9-386.5 SH: dk gy, weakly lam - bdd.

386.5-387.6 SLTST: brn, aa.

387.6-389.2 SH: dk gy, aa.

389.2-390.6 SLTST: dk brn, mnr bdd - lam, predly mas, occ calc fleck.

390.6-393.0 SH:dk gy, occ gy gn, mas, occ lam - bdd, predly mas.

393.0-396.5 SLTST: brn - sl red brn, occ mnr gy brn sections, mas, occ calc flecks.

396.5-398.4 SH: gy, mas, occ lam.

398.4-400.8 SLTST: brn - sl red brn, mas, com calc flecks.

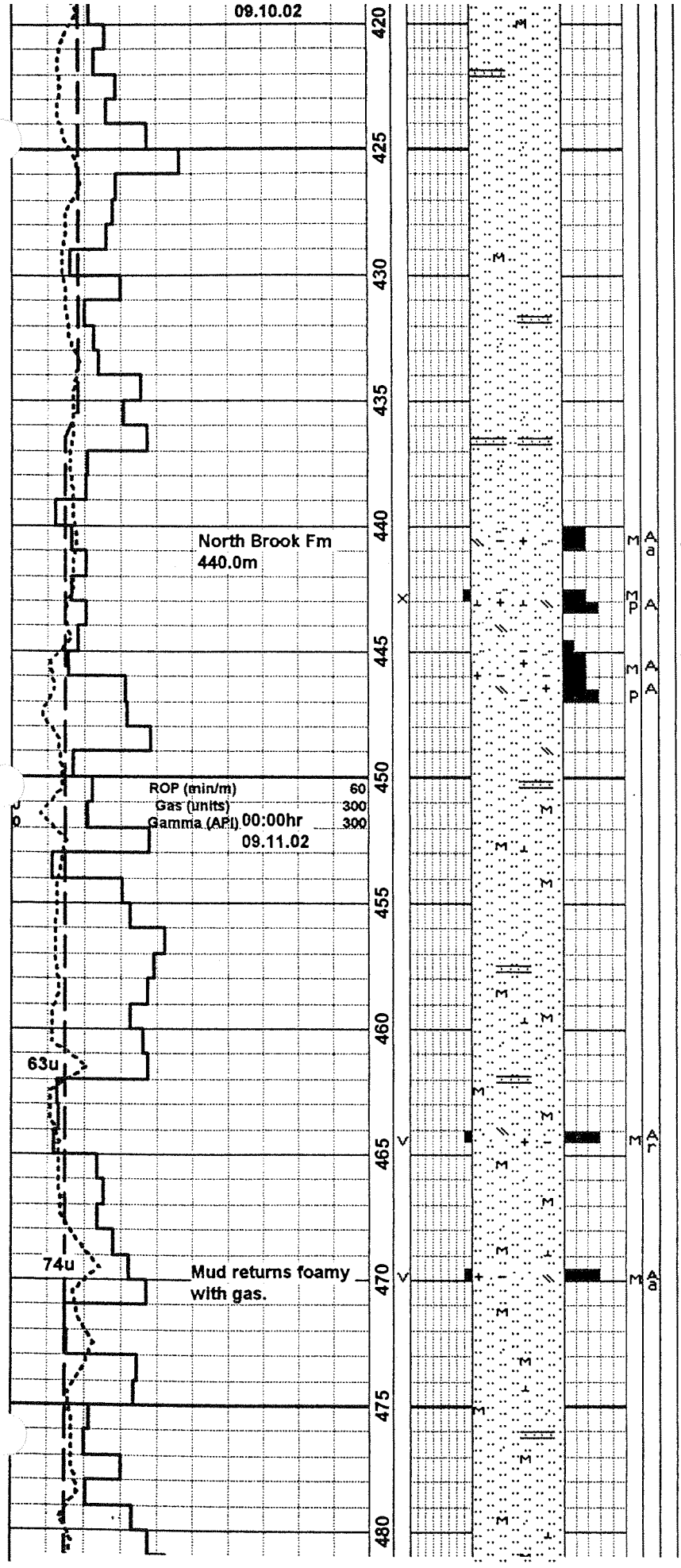
400.8-403.1 SH: gy, predly mas, occ lam, com slty lpt.

403.1-404.0 LS: gy, conglomerate, locally derived, occ lam lpt, com shly - slty lpt.

--- Red Silts 406.0m ---

404.0-407.8 SLTST: red - brn, mas, rr lam, com calc fleck.

407.8-440.0 SLTST: red - brn, lam - thinly bdd, occ mottle, rr gy vf gr SS lam.



--- North Brook Formation 440.0m ---

440-441.0 SS: red - pink, L vf - U f, mnr m gr, predly qtz / com fsp grs, A-a, m-p srt, w srt toward base, arg cmt at top giving way to gyp cmt at base, mnr gyp strg, tt, n show; basal 6cm is CGL consisting of LS clasts (<4cm) in a limy mud martix.

441.0-442.2 SLTST: red, mas, occ sdy ipt.

442.2-443.4 SS: red, L vf - U m gr, normally graded, predly fsp / com qtz grs, A, m srt, calc cmt, p intgran por (2-3%), n show. Basal 10cm is calcareous CGL / pbl <6mm, cross bedding evident just above CGL in M gr SS.

443.4-444.7 SLTST: red, mas, occ sdy ipt.

444.7-445.3 SS: red, normally graded, L vf - U m gr, arg ipt at top, predly fsp / qtz grs, A, gyp cmt, tt, n show.

445.3-445.5 SLTST: aa.

445.5-446.8 SS: red, L vf - U m gr, predly fsp & qtz, com arg at top, A, m srt, gyp cmt, tt, n show.

446.8-451.6 SLTST: red, predly mas, mnr lam ipt, occ sdy ipt, rr L vf gr SS strg, mnr mottle.

451.6-463.3 SLTST: red, aa, com mottle, mottles <5cm.

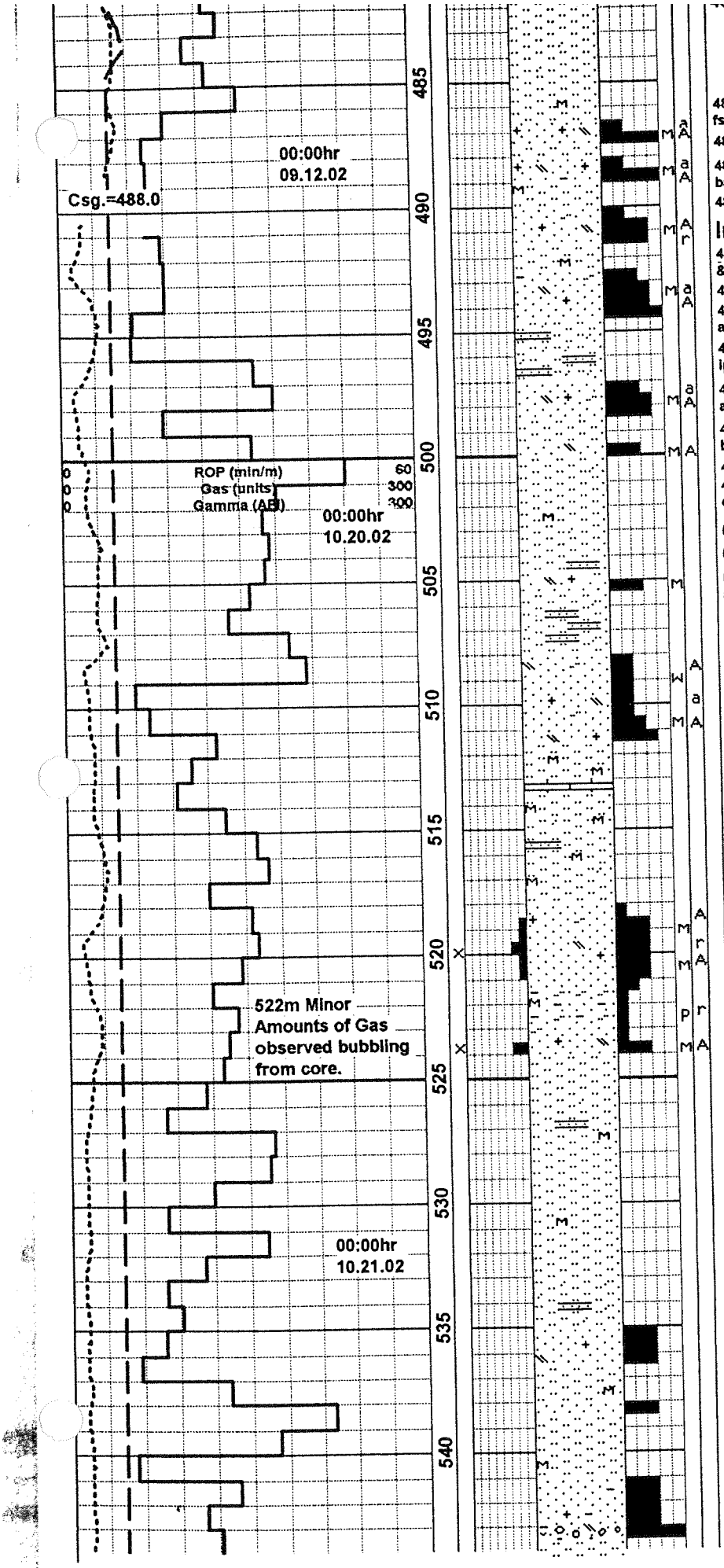
463.3-464.2 SLTST: red, lam - occ bdd, com sdy ipt.

464.2-464.7 SS: red, L vf gr - L m gr, normaly graded, predly pink fsp / mnr qtz, r-A, m srt, arg & gyp cmt, p vuggy por (1-2%), vugs are inferred to be secondary porosity that are now filled with gypsum & mnr calcite.

464.7-469.5 SLTST: aa, com mottle, com sdy ipt.

469.5-470 SS: red, L vf - L m gr, normaly graded, predly pink fsp / qtz, A-a, m srt, arg & gyp cmt, p vuggy por (1-2%), vugs are inferred to be secondary porosity aa.

470.0-482.3 SLTST: red, lam, occ sdy ipt, rr thin sdy beds, com mottle, rr gyp strg.



486.6-487.7 SS: lt gy & pink - red, L vf - U vc, normally graded, predly qtz / fsp, m srt, A-a, arg & gyp cmt, tt, n show.

487.7-488.1 SLTST: red, mas, occ lam, com mottle.

488.1-488.9 SS: red - pink, L vf - U vc, predly fsp toward top & qtz toward base, A-a, m srt, arg cmt toward top, gyp cmt toward base, tt, n show.

488.9-489.8 SLTST: red, mas - occ lam, mnr mottle.

Intermediate Casing = 488.0 09-12-02 @

489.8-491.6 SS: red, f- c gr, predly qtz / occ fsp, lam - bdd, m srt, A-r, gyp & arg cmt, tt.

491.6-492.4 SLTST: aa, gradational contact into unit below.

492.4-494.5 SS: red, vf - m gr, predly qtz & fsp, lam - bdd, A-a, m - p srt, arg & gyp cmt, tt.

494.5-496.8 SLTST / SS: red, mas / occ lam, occ calc mottle, com grdg ipt - vf - f gr SS, com SS strg.

496.8 -498.0 SS: gy - wh, f - c gr, predly qzt / fsp, A-a. m srt, occ mottle, arg & gyp cmt, occ calc cmt, tt.

498.0-498.6 SS: red, vf - f gr, prdly fsp & qtz, A-a, m srt, com arg ipt, lam - bdd, tt.

498.6-499.4 SLTST: aa.

499.4-500.0 SS: gy - red, f - vc gr, predly qtz & fsp, A-a, m - p srt, mas - occ lam, arg & gyp cmt, tt.

500.0-503.8 SLTST: red, mas, mnr mottle, occ sdy ipt.

503.8-504.9 SLTST: aa, com dy ipt, com grdg - L vf gr SS.

504.9-505.5 SS: red, f - m gr, predly qtz & fsp,lam, occ x beds, w srt, A-a, arg & gyp cmt, tt.

505.5-508.2 SLTST: red, com sdy ipt, predly fsp / qtz, com grdg ipt - L vf gr SS, com SS strg, mas - occ lam.

508.2-511.5 SS: red - pink, m - f gr, lam, A-a; w srt, occ slty ipt, basal 20cm has com sh rip up clast, sharp basal contact, gyp & arg cmt, tt.

511.5-512.0 SLTST: aa, com mottle.

512.0-513.0 SLTST: red, predly fsp, com grdg ipt - L vf gr SS, com sdy ipt, lam - mas.

513.0-513.4 LS: wh - lt gy, caleche nodules, rr root fos.

513.4-517.7 SLTST: red, com mottle, occ sdy ipt, lam - bdd, core com broken.

517.7-520.9 SS: red - occ pink, f - m gr, occ c - vc gr, mnr pbl up to 10mm, predly qtz, mas - occ lam, A-a, m srt, arg & mnr gyp cmt, f - p intgran por (3-6%), occ f intgran por (6-9%), n show.

520.9-522.5 SS:red, vf - f gr, occ m gr, com slty ipt, p srt, com grdrg - SLTST, mas / mnr lam, occ mottle.

522.5-523.8 SS: red, f - c gr, vc gr at base, predly qtz / fsp, A-a, w srt, lam - bdd, basal 20cm abt SH rip up clasts, arg & mnr gyp cmt, tt, n show.

523.8-535 SLTST: red, occ grdg - L vf gr SS, occ sdy strg, rr pbl up to 30mm, basal 1m com sdy ipt.

535.0-536.4 SS: red, vf - m gr, predly qtz, w srt, A-a, arg & gyp cmt, tt.

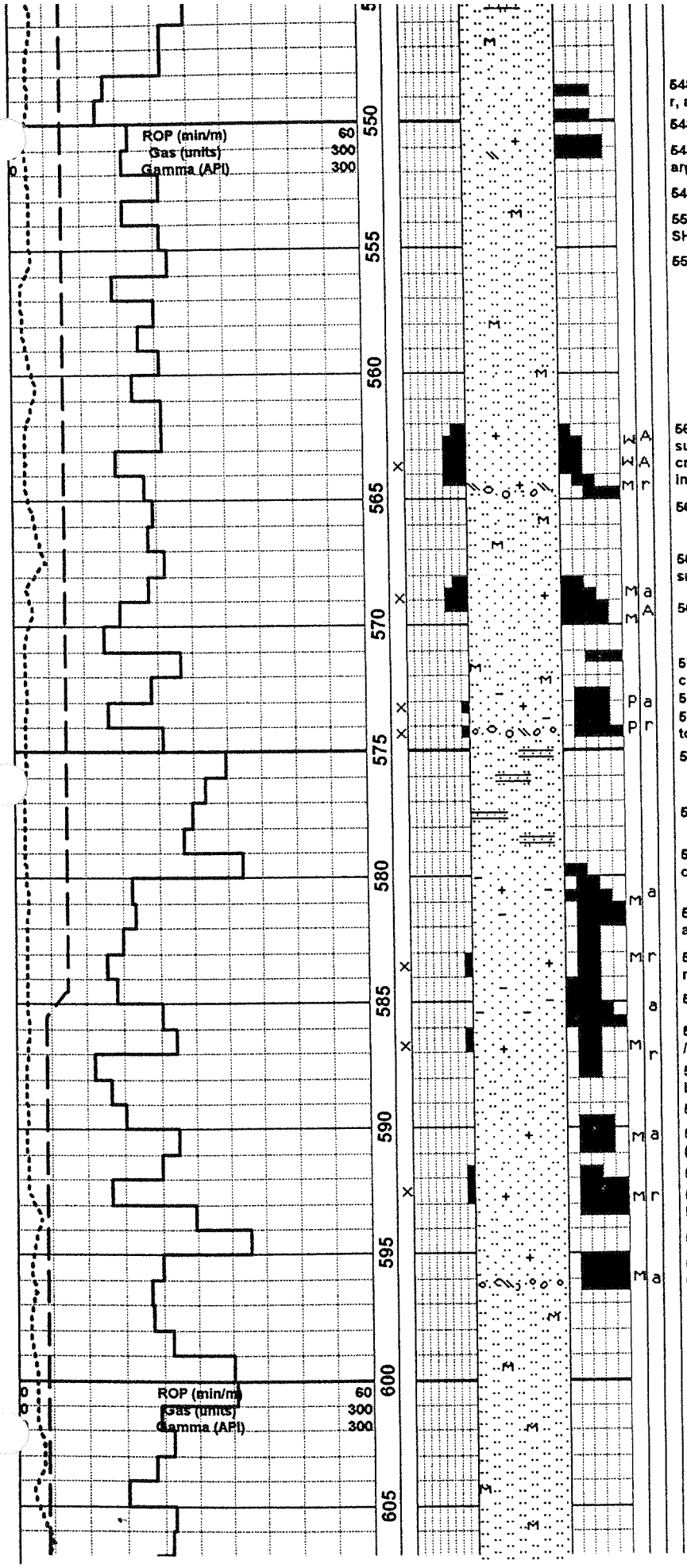
536.4-538.0 SLTST: red, aa.

538.0-538.5 SS: red - pink, vf - m gr, predly qtz, w srt, lam, arg cmt, tt.

538.5-540.9 SLTST: red, aa.

540.9-542.6 SS: red, f - m gr, occ c - vc gr, basal 70cm CGL / pbl up to 4cm, predly qtz, m srt, A-a, mnr R-r, arg & gyp cmt, tt.

542.6-543.5 SS: red, vf - m gr, predly qtz, com slty ipt, confused section c bdd SS & SLTST, abt cut & scour, occ mottle, arg cmt, tt.



548.4-548.8 SS: red, vf - m gr, predly qtz / fsp, pbl @ base, w srt, A-a, mnr r, arg & gyp cmt, tt.

548.8-549.4 SLTST: red, lam, contorted, mottle, mnr sdy ipt.

549.4-549.9 SS: red, m - c gr, predly qtz / fsp, pbl up to 2 cm, m srt, A-a, arg & gyp cmt, tt.

549.9-550.4 SLTST: aa.

550.4-551.6 SS: red, f - m gr, predly qtz, sharp basal contact, base has abt SH rip up clasts, p srt, A, arg cmt, tt.

551.6-561.8 SLTST: red, lam, occ vf gr SS strg, com mottle.

561.8-564.8 SS: red - pink, f - m gr, occ vc sections, basal 40cm CGL pbl supported up to 3cm, lam, w srt, A-a, mnr r, basal 40cm has abt gypsum cmt, predly arg & hem cmt, pervasive gyp cmt towards base, predly f intgran por(6-9%), n show.

564.8-567.7 SLTST: red, lam, com mottle, occ sdy ipt.

567.7-569.8 SS: red, vf - c gr, predly qtz, rr pbl up to 4cm, occ granule, m srt, A-a, arg & hem cmt, f ingran por (6-9%), n show.

569.8-571.2 SLTST: red, lam, rr sdy ipt.

571.2-571.6 SS: red, m - vc gr, predly qtz / fsp, a-r, m srt, arg & occ gyp cmt, tt.

571.6-572.6 SLTST: red, mas, com mottle.

572.6-574.3 SS: red, f - c gr, predly qtz / fsp, com SH rip up clasts, CGL ipt towards base, p srt, a-r, arg cmt, mnr p intgran por (3-4%), n show.

574.3-577.5 SLTST: aa.

577.5-579.5 SLTST: red, mas - lam, occ bdd, com SS strg, com sdy ipt.

579.5-581.8 SS: red, f-vc gr, occ pbl up to 1cm, predly qtz & fsp / SH rip up clasts, p srt, A-a, arg cmt, tt.

581.8-583.7 SS: red - pink, vf - vc gr, occ pbl up to 1cm, predly qtz / fsp, a-r, p srt, arg ipt, com SLTST & SH strg, arg cmt, tt.

583.7-584.0 SS: red, f-m gr, predly qtz / mnr fsp, mas, a, w srt, arg & hem mnr gyp cmt, p-f intgran por (3-6%), n show.

584.0-586.3 SS: red, vf - cc gr, predly qtz, arg ipt, a-r, p srt, tt.

586.3-587.0 SS: red, f-m gr, predly qtz / mnr fsp, mas, a, w srt, arg & hem / mnr gyp cmt, p-f intgran por (2-3%), n show.

587.0-588.1 SS: red - pink, vf gr, predly qtz / fsp, a-r, w srt, arg cmt, arg ipt, wk calc cmt, tt.

588.1-589.4 SLTST: red, lam, mottle.

589.4-590.7 SS: red, f - c gr, predly qtz, a-r, w srt, arg cmt, p intgran por (2-3%), n show.

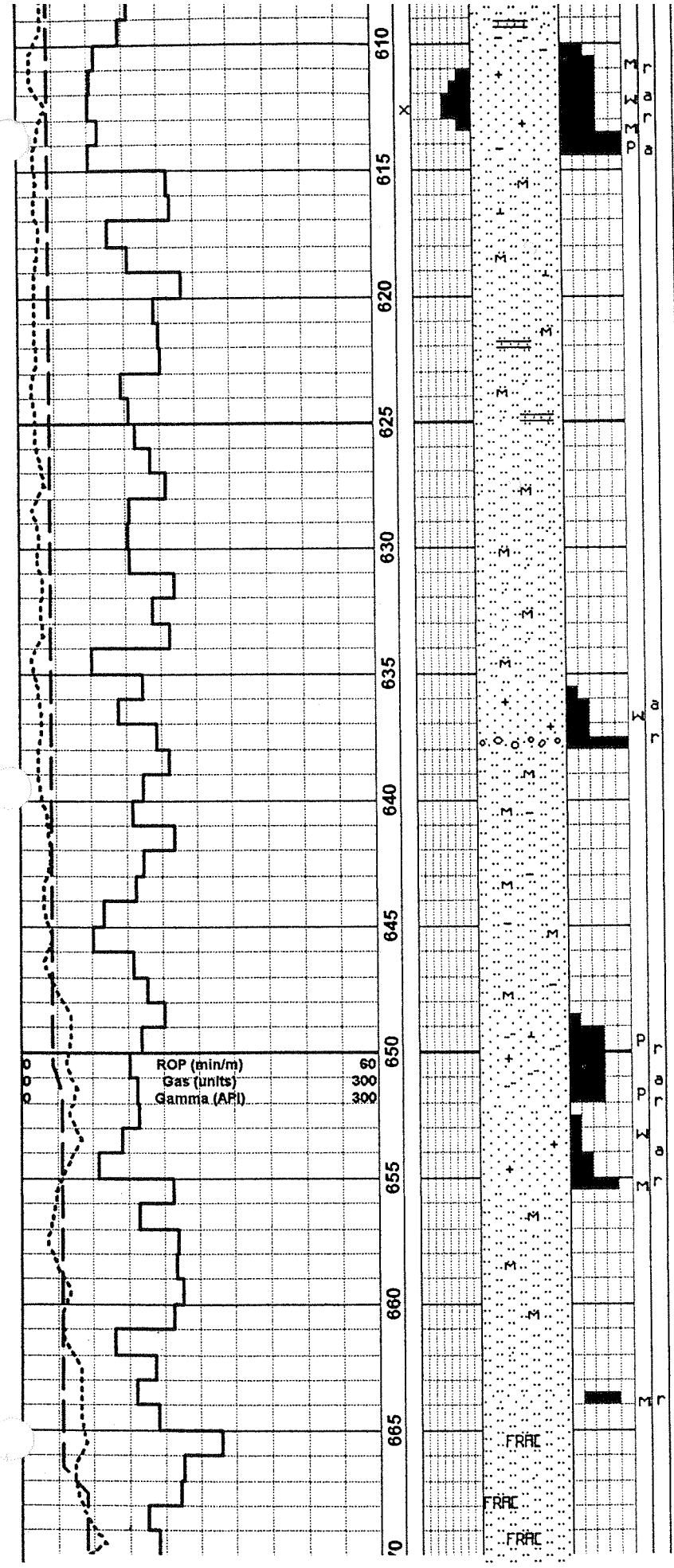
590.7-591.6 SLTST: red, aa.

591.6-593.3 SS: red, f - vc gr, predly qtz, a-r, occ R, w srt, CGL towards base, shly at 592.6m, p intgran por (2-3%), n show.

593.3-595.0 SLTST: brn, mottle, lam.

595.0-596.6 SS: red, f - vc, predly qtz / fsp, lam - bdd, abt sh rip up clasts, CGL towards base, aby gyp cmt toeards base, arg cmt, tt.

596.6-609.4 SLTST: red, becoming brn gy toward basal 2m, lam, abt mottle, basal 1m sdy ipt and calc.



609.4-614.7 SS: brn gy, f - vc gr, predly qtz / fsp, lam & mas, occ pbl up to 1cm in basal 1.5m, com sh rip up clasts in basal 1.5m, predly w srt / occ p srt, a-r, arg & hem cmt, rr gyp cmt, f - g intgran por (8-12%), n show.

614.7-623.0 SLTST: red, occ shly, com mottle, v com calc banding, mas & occ lam.

623.0-628.3 SLTST: red, com mottle, com grdg ipt - L vf gr SS, sdy, lam & rr bdd, rnr m gr ss strg.

628.3-635.5 SLTST: red, mas - lam, com mottle, com calc strg, occ sdy ipt.

635.5-637.9 SS: red, vf - m gr, basal 50cm CGL, predly qtz / fsp, a-r, w srt, arg cmt, tt.

637.9-648.5 SLTST: red, mas, mottle.

648.5-650.5 SS: red - pink, vf - m gr, com slty, predly qtz / fsp, p srt, a-r, wk calc cmt & arg cmt, tt.

650.5-652.0 SS: red, vf - m gr, predly qtz / fsp, com slty ipt, p srt, a-r, arg cmt, tt.

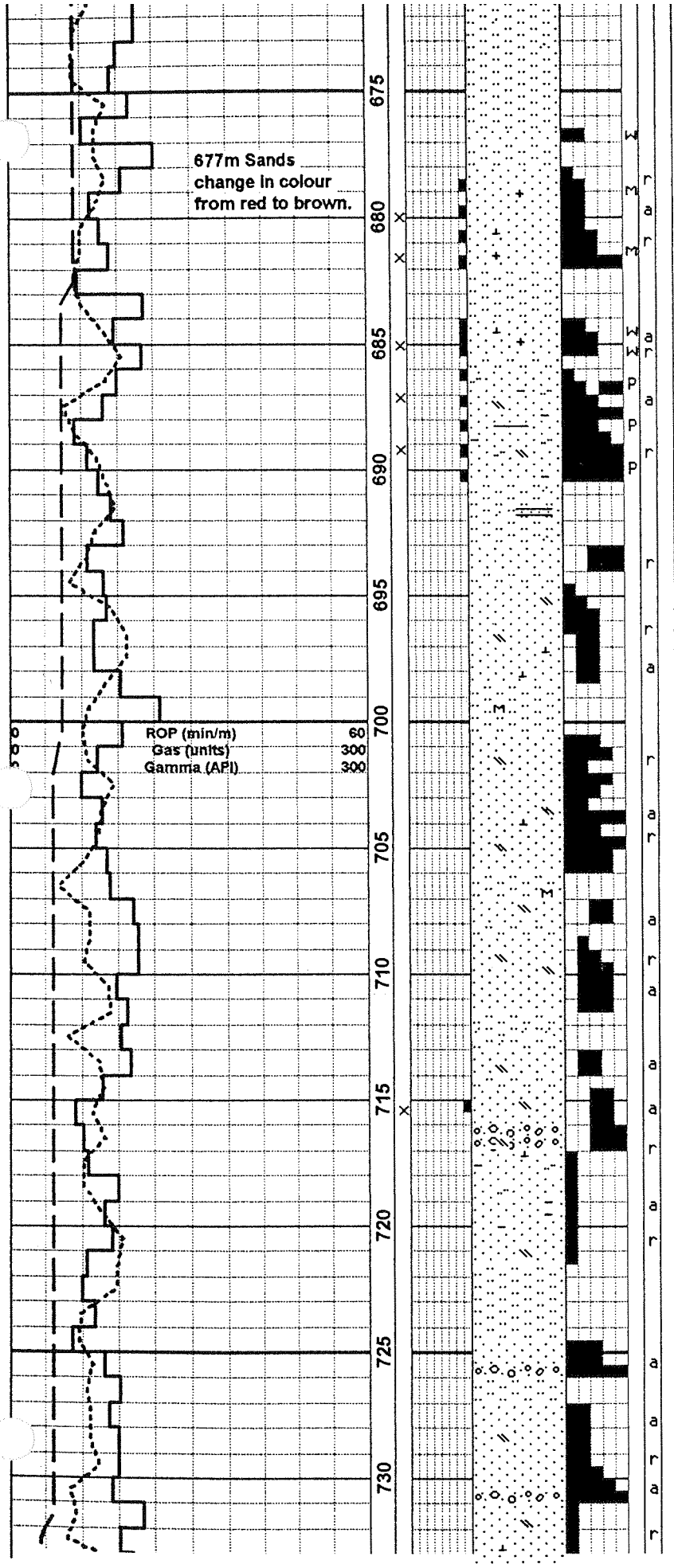
652.0-652.7 SLTST: maroon - gy, mas, com mottle.

652.7-655.5 SS: gy grdg - red at base, vf - c gr, occ pbl up to 1cm, predly qtz / fsp, occ mica, lam, a-r, m srt, arg cmt, tt.

655.5-663.5 SLTST: red, mas, com mottle.

663.5-664.1 SS: brn gy, m - c gr, predly qtz / fsp, a-r, m - w srt, arg & wk calc cmt, tt.

664.1-676.5 SLTST: red, mas, com mottle, occ fracture / slicks and thin occ / thin calc veinlets, com fractures 666.0-667.0m & 668.6-671.0m.



676.5-677.2 SS: brn, vf - f gr, predly qtz / fsp, a-r w srt, lam, arg & hem cmt, tt.

677.2-677.8 SLTST: aa.

677.8-682.2 SS: red b- lt brn, occ gy, vf - vc near base, predly qtz / fsp, a-r, rr R, m srt, lam - bdd, mnr pbl up to 1cm, arg & hem cmt, mnr calc & gyp cmt, p intgran por (2-3%), n show.

682.2-684.0 SLTST: red, mas, mottle.

684.0-685.6 SS: brn, f - c gr, predly qtz, v w srt, a-r, arg / wk calc cmt, p intgran por (2-3%), n show.

685.6-686.0 SLTST: red - brn, com mottle.

686.0-690.4 SS: brn, vf - vc gr, predly qtz / fsp, occ pbl up to 3cm, com granule, occ sh rip up clast, a-r, p srt, mnr w srt sections <10cm, shly ipt, v immature SS, gyp & arg cmt, gyp cmt occurs as dusty infill rather than crystaline, p intrran por (2-3%), n show.

690.4-692.8 SLTST: red, occ sdy ipt, mnr thin SS strg, occ mottle, mas.

692.8-694.0 SS: brn, m - vc gr, pbl up to 3cm, predly qtz / fsp, occ matrix supported CGL, m - p srt, a-r, pib r-R, gyp & wk calc cmt, tt.

694.0-694.5 SLTST: red, mas, motttle.

694.5-698.5 SS: brn, vf - m gr, c - vc in basal 1m, predly qzt & fsp, a-r, w srt, occ m srt, gyp & wk calc cmt, stronger calc cmt in basal 2m, tt.

698.5-700.6 SLTST: red - brn, mas, mottle.

700.6-705.8 SS: brn, vf - vc gr, predly qtz & fsp, a-r, p srt, gyp cmt / wk calc cmt, tt.

705.8-707.0 SLTST: brn, mas, mottle, sdy toward base.

707.0-707.9 SS: brn gy, m - c gr, predly qtz & fsp, mnr mica, a-r, rr pbl up to 2cm, m - p srt, gyp & wk calc cmt, tt.

707.9-708.7 SLTST: aa.

708.7-711.3 SS: brn - maroon, c - f gr, predly qtz & fsp, a-r, w srt, shly toward basal 70cm, arg & gyp cmt, tt.

711.3-712.8 SLTST: aa, occ sdy ipt.

712.8-713.2 SS: brn - pink, f - m gr, predly qtz & fsp, m srt, a-r, gyp & wk calc cmt, tt.

713.2-714.3 SLTST: red-brn, com sdy ipt, lam - mas.

714.3-716.7 SS: brn, m - vc gr, occ pbl up to 1cm, basal 1m is CGL granules, m - p srt, a-r, pbl r-R, predly tt / p intgran por (2-3%) over interval 715.1-715.5, n show.

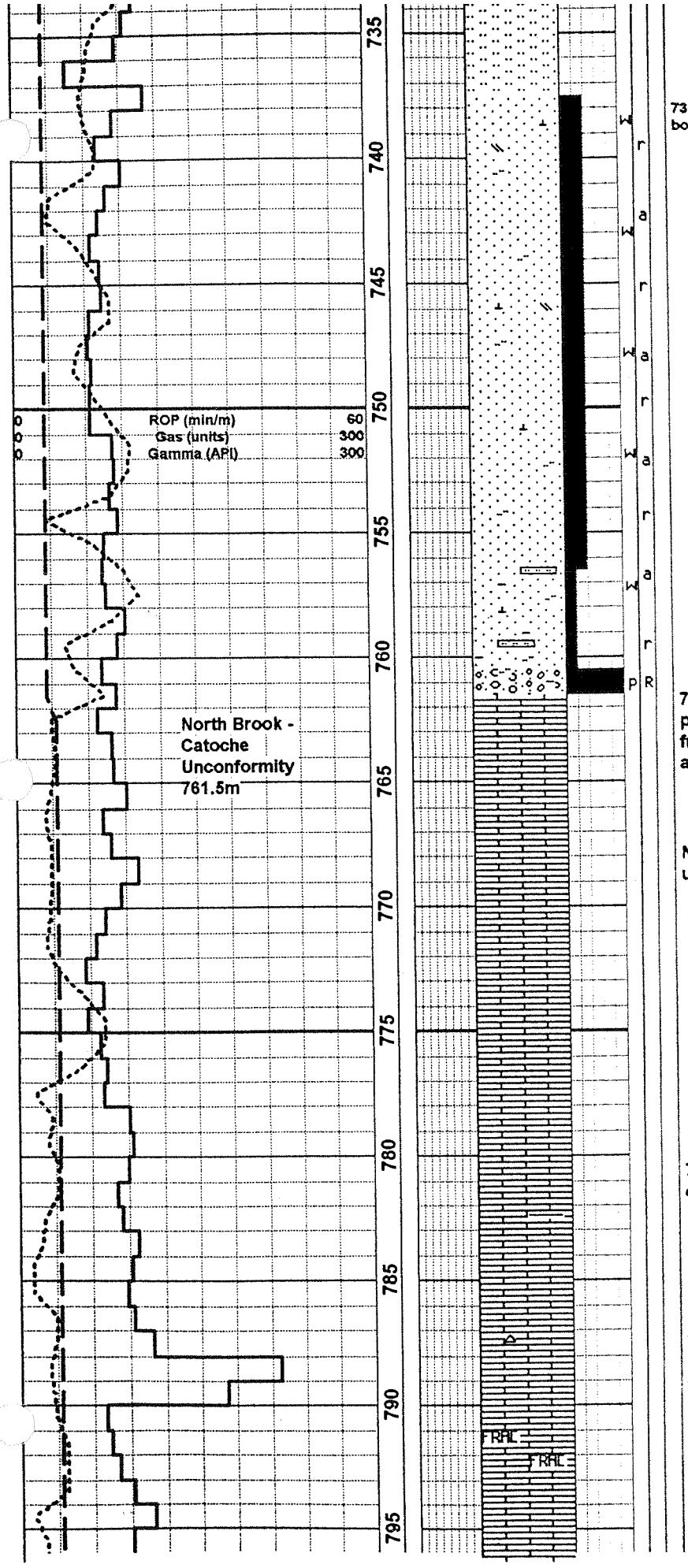
716.7-721.5 SS: red brn, vf gr, predly qtz & fsp, com grdg - SLTST, occ shly ipt, basl 1m predly sdy vc - m gr, arg gyp and wk calc cmt, tt.

721.5-724.5 SLTST: brn - red, occ sdy, occ thin CGL bds, occ mottle, predly mas.

724.5-726.0 SS: brn, m - vc gr, VGL in basal 70cm, predly qtz & fsp, m srt, pbl up to 3 cm, calc & gyp cmt, tt.

726.0-727.1 SLTST: brn, sdy ipt, occ suspended pbl up to 2cm.

727.1-733.5 SS: brn, vf - m gr, predly qtz & fsp, a-r, p srt, calc & gyp cmt, tt.



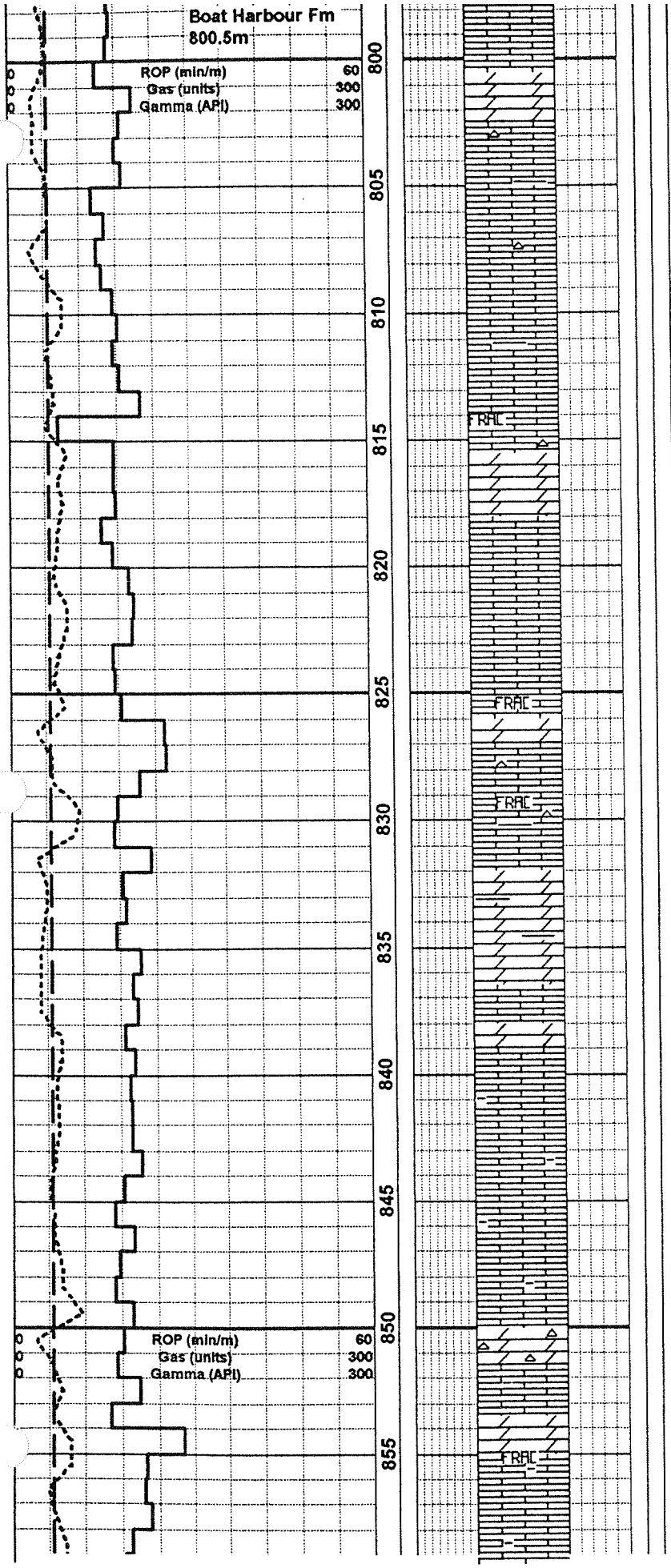
737.5-761.5 SS: brn, vf - f gr, occ suspended pbl up to 5cm, basal 1m has boulders up to 30cm, mas - lam, calc & mnr gyp cmt, tt.

761.5-780.5 MARBLE: gy - lt gy, mas - "marble" texture, predly calc, crystalline, crystals up to 2mm, occ calcite filled fracture, occ stylolite, occ fracture filled with North Brook age mud, tt.

N.B. Lithology symbols used between 761.5 & TD i.e. are used to represent the parent rock of the marble logged.

780.5-787.5 MARBLE: gy - lt gy, predly calc, mas - occ bdd, occ thin shly lam, rr fracturtes, So=45'.

787.5-780.5 MARBLE: lt gy - wh, mnr pink, predly calc, occ mnr thin schist lam, mas - thin bdd, rr thin cht veins, open fractures 791.0m & 792.0m.



800.3-802.5 MARBLE: lt gy, pink toward base, mas, predly dol & calc lpt.

802.5-815.7 MARBLE: lt gy, mas - bdd, predly calc, mnr thin schisty lam, mnr cht vein & cht filled fractures, open fracture 814.3m.

815.7-817.0 MARBLE: lt gy - wh, predly dol / mnr calc, bdd - rr cht vein & cht filled fractures.

817.0-825.9 MARBLE: wh, predly calc, finer grained than above, mnr bdd predly mas.

825.9-827.0m MARBLE: wh, predly dol / mnr calc, occ cht veins, occ thin sh lam, So=45'.

827.0-831.9 MARBLE: predly calc, mnr thin sh lam, mnr cht, open near vertical fracture 827.5 - 829m.

831.9-836.3 MARBLE: wh, predly dol / mnr calc, rr sh lam, very fine grained.

836.3-836.9 MARBLE: wh - lt gy & pink, predly calc, mas, occ shly lpt.

836.9-838.9 MARBLE: wh, mas, predly dol / mnr calc, crpxl.

838.9-842.5 MARBLE: wh, occ lt gy, predly calc, wk bdd.

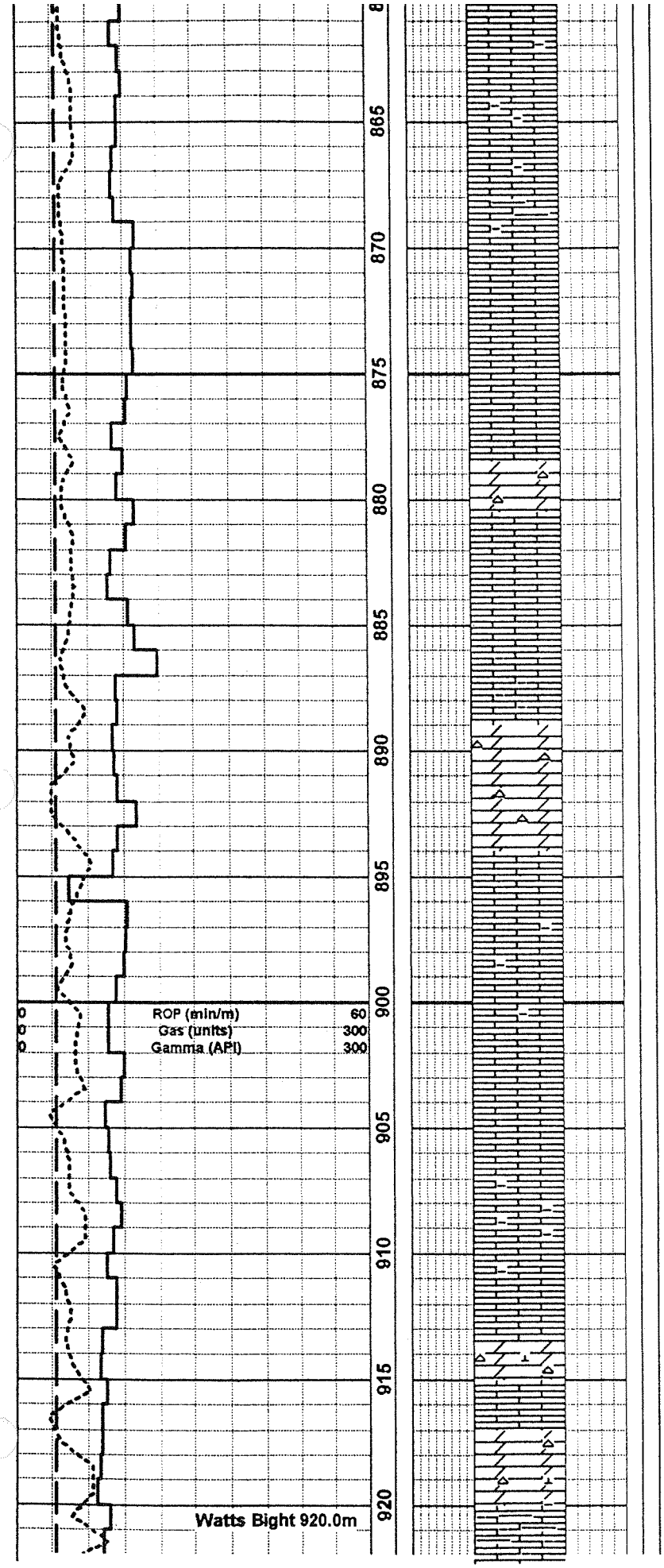
842.5-850.0 MARBLE: wh - gy, predly calc, com sh lam, basal 6cm is fault breccia and fault along the So, So=45'.

850.0-851.6 MARBLE: wh, predly dol, mas, crpxl, com cht filled closed fractures.

851.6-853.6 MARBLE: wh - lt gy, occ pink, predly calc, occ sh lam.

853.6-854.8 MARBLE: wh - gy, predly dol, mas - wk bdd, mnr cht filled fractures.

854.8-865.3 MARBLE: gy - lt gy, occ wh, predly calc, occ sh lam, mnr mottled near top 2m, 855.0m open 45' TCA fracture.



865.3-868.9 MARBLE: gy - dk gy, predly calc, com sh lam & sh bds up to 1cm, 868.0-868.5m v com sh.

868.9-875.1 MARBLE: gy, predly calc, com large scale mottle, massive.

875.1-877.1 MARBLE: wh, predly dol, thin bdd, mnr sh lam, crpxl - micxl.

877.1-878.3 MARBLE: wh, predly calc, mas.

878.3-880.4 wh, predly dol, mas occ cht veins.

880.4-888.8 MARBLE: wh-gy, predly calc, basal 1m com sh, mas - occ bdd.

888.8-894.2 MARBLE: wh - gy, predly dol, crpxl - micxl, com cht veins.

894.2-897.6 MARBLE: gy - dk gy, predly calc, wk bdd, So=50'.

897.6-902.0 MARBLE: gy, predly calc, com thin sh lam, com crenulated, rr "pinch and swell" structures, rr "S" fabrics.

902.0-907.5 MARBLE: wh - lt gy, predly calc, mas, rr sh lam rr sh lam.

907.5-911.5 MARBLE: gy, predly calc, com sh lam, rr sh beds, 908-909m zone of brittle deformation.

911.5-913.0 MARBLE: gy - dk gy, predly calc, com mottled, mas.

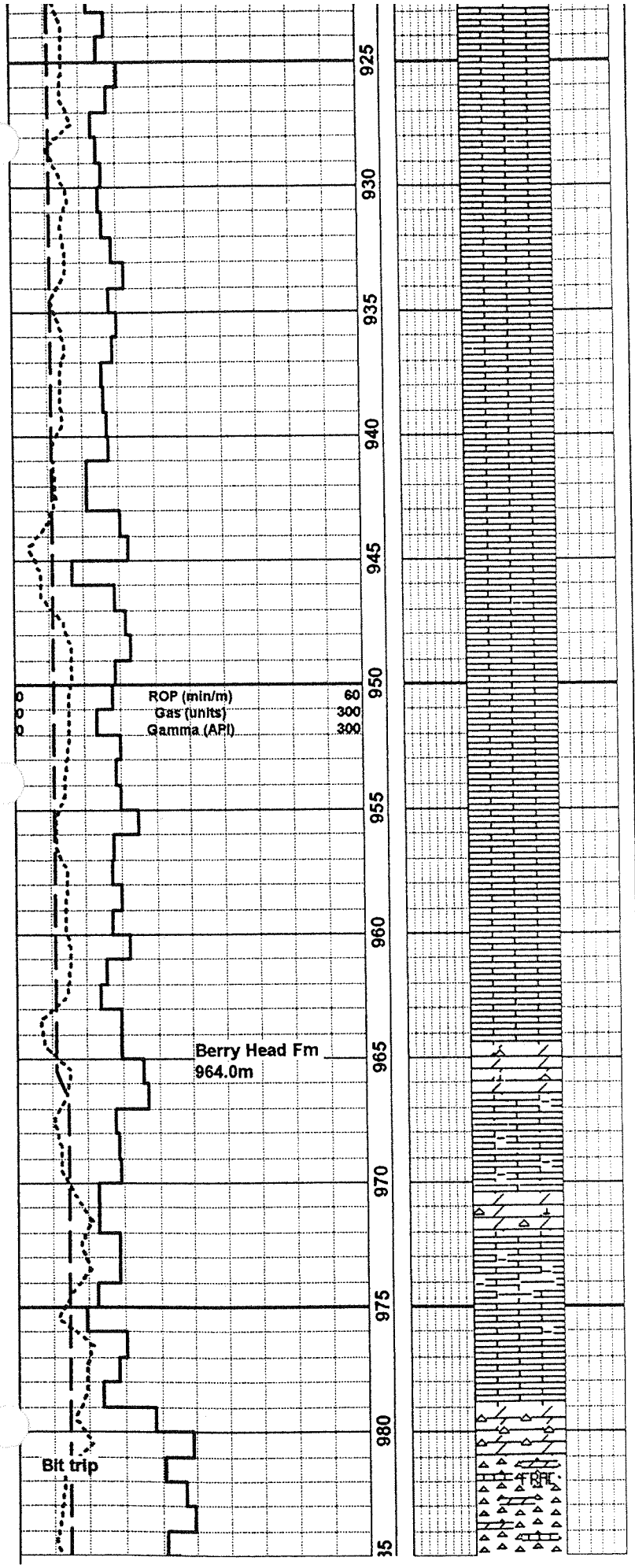
913.0-913.5 MARBLE: wh, predly calc, mas.

913.5-914.8 MARBLE: wh, predly dol, occ vein of calc & cht

914.8-917.0 MARBLE: gy - dk gy, occ wh, predly calc, mnr sh lam.

917.0-919.9 MARBLE: gy - dk gy, predly dol, rr sh lam, mnr cht & calc veins.

919.9-921.5 MARBLE: dk gy, predly calc, com sh lam & thin sh beds, com "pinch and swell" structures, com "S" fabrics



921.5-922.5 MARBLE: lt gy, predly calc, mnr sh lam, occ wk lt gy mottling.

922.5-944.0 MARBLE: wh - occ lt gy, predly calc, rr sh lam.

944.0-950.0 MARBLE: lt gy, predly calc, rr wk mottle, mnr sh lam.

950.0-953.1 MARBLE: gy - occ dk gy, predly calc, mas, com mottling.

953.1-960.6 MARBLE: lt gy, predly calc, mas, rr wk mottle.

960.6-963.5 MARBLE: gy - dk gy, predly calc, com mottle.

963.5-964.5 MARBLE: gy, predly calc, mas, mnr sh lam.

964.5-967.3 MARBLE: gy, predly dol, com cht & calc veins.

967.3-970.5 MARBLE: gy, predly calc, com sh strg and lam, So=65'.

970.5-971.9 MARBLE: gy, predly dol, com calc and cht veins

971.9-973.2 MARBLE: gy, predly calc, mas, wk mottle, So=45'.

973.2-974.5 MARBLE: gy, wh and occ lt brn - pink, bdd - lam, com arg ipt sh lam & bds up to 1cm, com p developed "pinch and swell" structures & "S" fabrics.

974.5-976.1 MARBLE: gy, predly calc, rr sh lam @ base, mas.

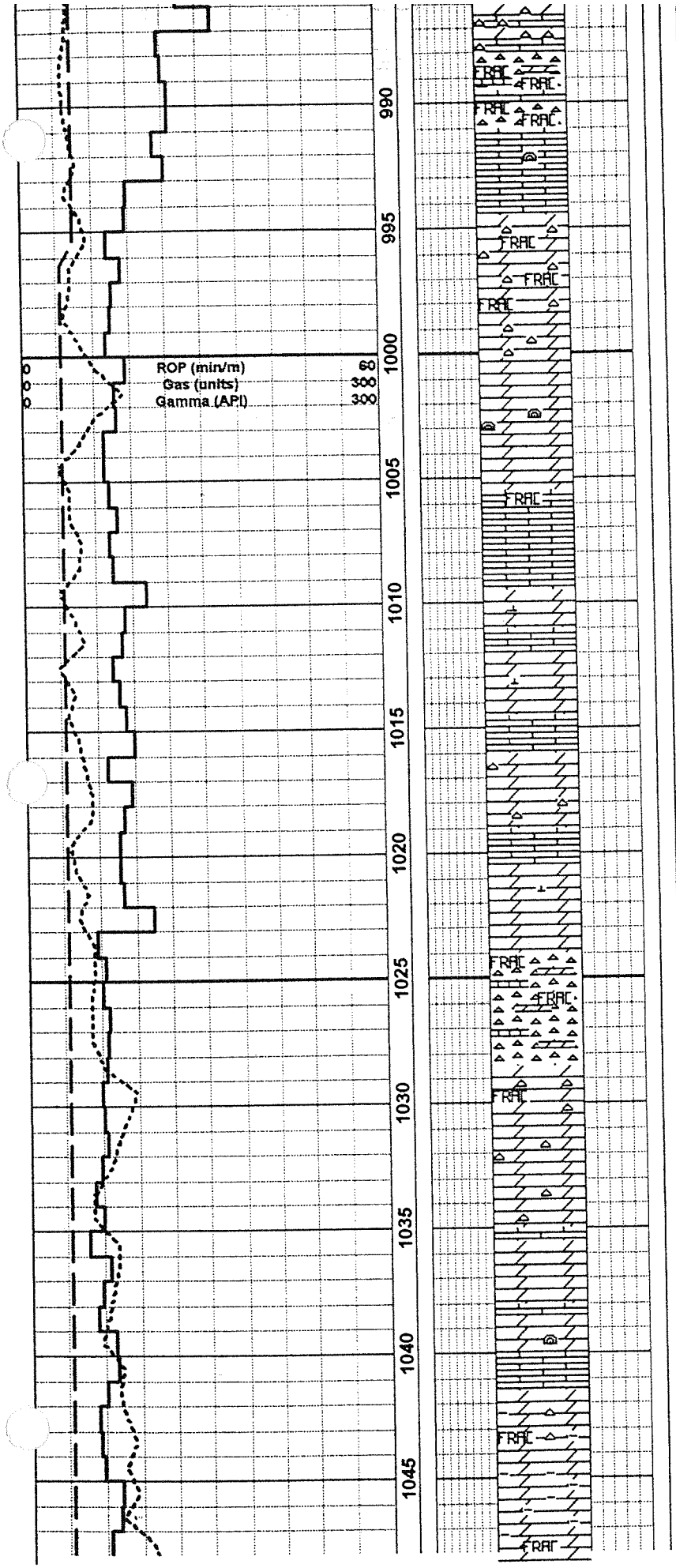
976.1-978.1 MARBLE: gy, predly dol, com irregular closed fractures filled with cht, calc, & hem, occ partially open fracs with hem coatings, occ closed fracs with yel staining, p vuggy secondary por (1-3%) associated with yellow stain veining.

978.1-979.0 MARBLE: wh - lt gy, predly calc, wk mottle, mas.

979.0-981.0 MARBLE: gy - dk gy, predly dol, com cht ipt, com "compressional" fractures i.e. perpendicular to core axis, occ closed hem lined fractures.

981.0-984.9 CHT: gy, dol & calc ipt, com lam, com calc & cht veins.

984.9-985.2 MARBLE: gy, predly calc, abt cht, dol ipt, bdd, mnr open frac hem coating.



scale, occ cht ipt.

988.3-989.3 CHT: gy, occ calc & dol ipt, abt irregular frac, abt yel stn along irregular frac, fracs com / hem coating, p spotty vuggy secondary por (1-3%) associated with yellow stain veining.

989.3-990.0 MARBLE: gy, predly calc, bdd, wk mottle.

990.0-990.9 CHT: gy, mas, abt irregular closed frac / com hem coatings, occ yel stn along fracs.

990.9-994.7 MARBLE: gy, predly calc, occ dol ipt, occ cht ipt, bdd-lam, quest strom.

994.7-998.8 MARBLE: gy, predly dol, com cht ipt, com - abt irregular fracs / hem coatings.

998.8-1005.5 MARBLE: gy, predly dol, occ cht ipt, bdd - lam, occ strom @ 1003.0 & 1002.5m, So=45'.

1005.5-1009.5 MARBLE: gy - dk gy, predly calc, com mottle, bdd, rr closed frac, 1006.3 abt fracs for 40cm.

1009.5-1011.1 MARBLE: wh - gy, predly dol, lam - bdd, mnr calc veins.

1011.1-1011.8 MARBLE: wh - gy, predly calc, thinly bdd.

1011.8-1014.6 MARBLE: wh - crm, predly dol, predly mas, occ calc veins, mnr irregular fracs / hem coatings from 1013.2-1013.4.

1014.6-1016.2 MARBLE: gy, predly calc, bdd, wk mottle.

1016.2-1018.9 MARBLE: gy, predly dol, mas - occ lam, rr bdd, occ chty ipt.

1018.9-1020.7 MARBLE: gy - dk gy, predly calc, bdd - occ lam, com mottle.

1020.7-1024.2 MARBLE: gy, predly dol, mas, occ calc veins, mnr closed fracs with hem coatings.

1024.2-1028.6 CHT: gy - dk gy, predly cht / com dol & mnr calc, com near vertical partially fractures, fractures 1024.2 to 1026.5.

1028.6-1034.8 MARBLE: gy - lt gy, predly dol / occ cht, near vertical fractures from 1030-1031.0, occ calc & cht veins.

1034.8-1035.2 MARBLE: lt gy - wh, predly calc, lam - bdd, mnr sh lam.

1035.2-1037.7 MARBLE: lt gy, mnr lt brn near base, predly dol, mas, occ strom near base.

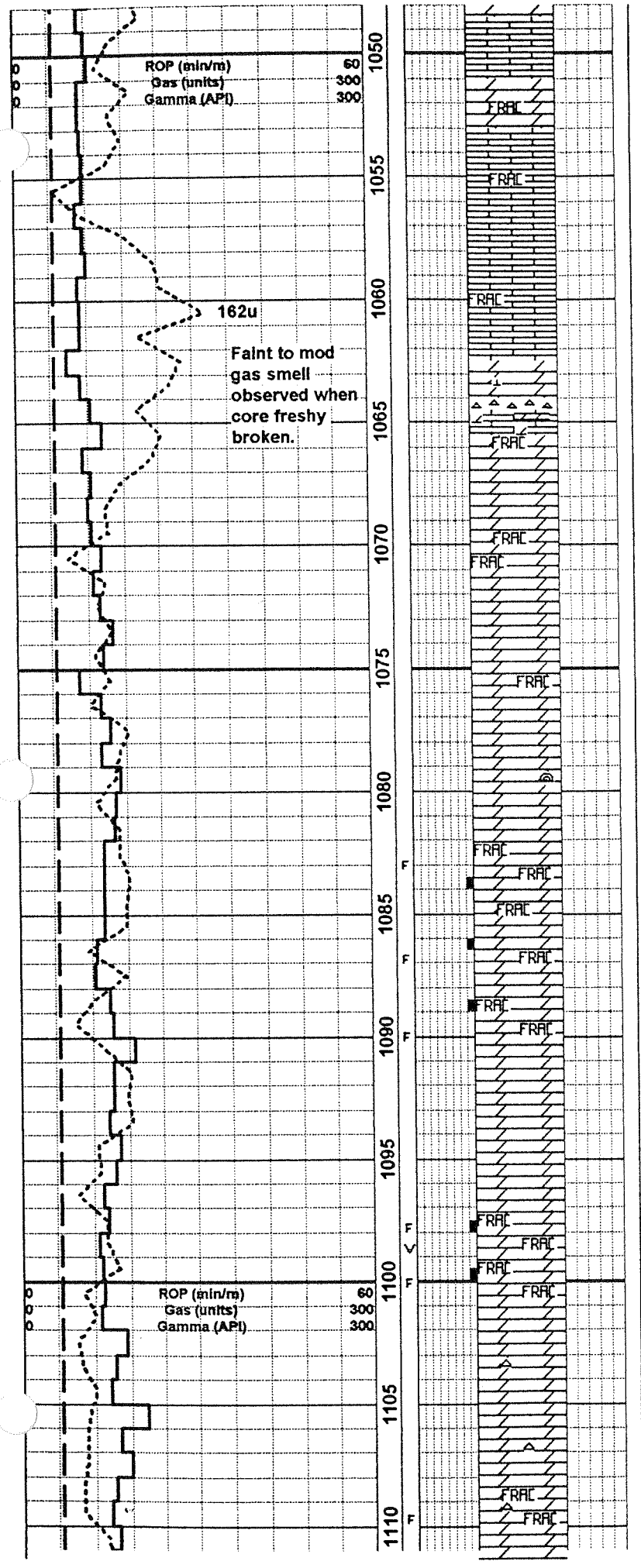
1037.7-1038.5 MARBLE: gy, predly calc, bdd, rr sh lam, wk mottle, So=40'

1038.5-1039.8 MARBLE: gy, lt brn pink toward base, mnr strom, v arg ipt toward basal 40cm.

1039.8-1041.5 MARBLE: gy - dk gy, predly calc, occ mottle, wk bdd.

1041.5-1043.7 MARBLE: gy - dk gy, predly dol, com arg & occ chty, mnr irregular closed fracs / hem coatings, 1043.8 open low angle fracture.

1043.7-1048.5 MARBLE: brn gy, predly dol, com arg ipt,com shly lam & thin bds, mnr closed irregular fracs, 1044.2 angular fault / 10cm of calc orng gouge.



1048.5-1050.8 MARBLE: wh - lt gy, predly calc, mas, com calc veins, occ irregular closed fracs / hem lining.

1050.8-1052.7 MARBLE: lt gy - gy, predly dol, mas.

1052.7-1054.4 MARBLE: gy - dk gy, mas, predly calc, basal 0.5m com med - low angle fracs.

1054.4-1062.4 MARBLE: gy - dk gy, predly calc, com bdd - occ mas, com mottle, mnr closed frac / hem lining.

1062.4-1063.8 MARBLE: gy, predly dol, mas, rr calc veins.

1063.8-1064.5 CHT: wh - pink, irregular cht nodules in lt brn gy dol marble.

1064.5-1065.7 MARBLE: gy - lt gy, predly calc & dol calc ipt, chaotic bdd, occ looks like CGL.

1065.7-1066.8 MARBLE: gy - dk gy, predly dol, mas, possible CGL.

1066.8-1068.8 MARBLE: dk gy - dk gy brn, predly dol CGL, clasts up to 6cm, pos crinoid, pos brac.

1068.8-1069.5 MARBLE: aa, clasts 1-5mm, rr up to 2cm.

1069.5-1071.0 MARBLE: brn gy, predly dol, com arg ipt, occ vert frac.

1071.0-1074.0 MARBLE: gy - occ dk gy, mnr orng ipt, predly dol, mas, occ cht & calc veins.

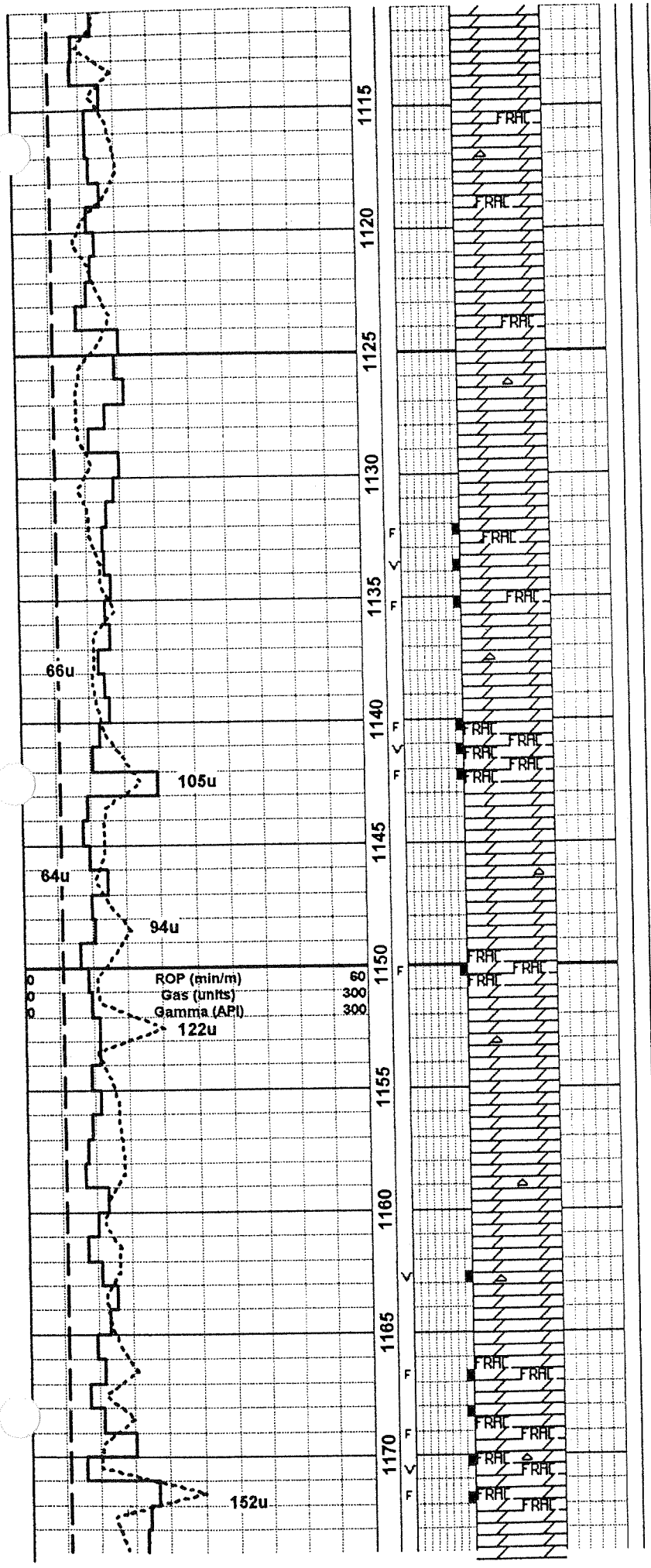
1074.0-1076.7 MARBLE: gy - wh, predly dol, mas, occ near vertical frac, mnr cht & calc veins.

1076.7-1077.9 MARBLE: gy & occ yel ipt, predly dol, com irregular fracture, com yel stn, mas.

1077.9-1103.0 MARBLE: gy - lt gy, occ dk gy, predly dol, mas, occ wk bdd, strom @ 1079.5m, occ vertical fractures throughout with the majority occuring between 1082.5-1090.5m & 1094.5-1103.0m, best vuggy por occurs 1097.5-1099.5, predly tt, mnr p vug & frac por (1-2%), n show.

1103.0-1110.0 MARBLE: gy, predly dol, bdd, occ mottle, occ chty ipt, occ fracs toward base.

1110.0-1114.5 MARBLE: gy, predly dol, mas, com irregular fracs, mnr



vugs from 1111.5 - 1113.5m, occ wk mottle in basal 1m, mnr vugs associated with fractures, vugs are com filled or filled ipt / hem.

1114.5-1119.0 MARBLE: predly gy, occ sl yel gn, com mottle, com closed irregular closed fracs.

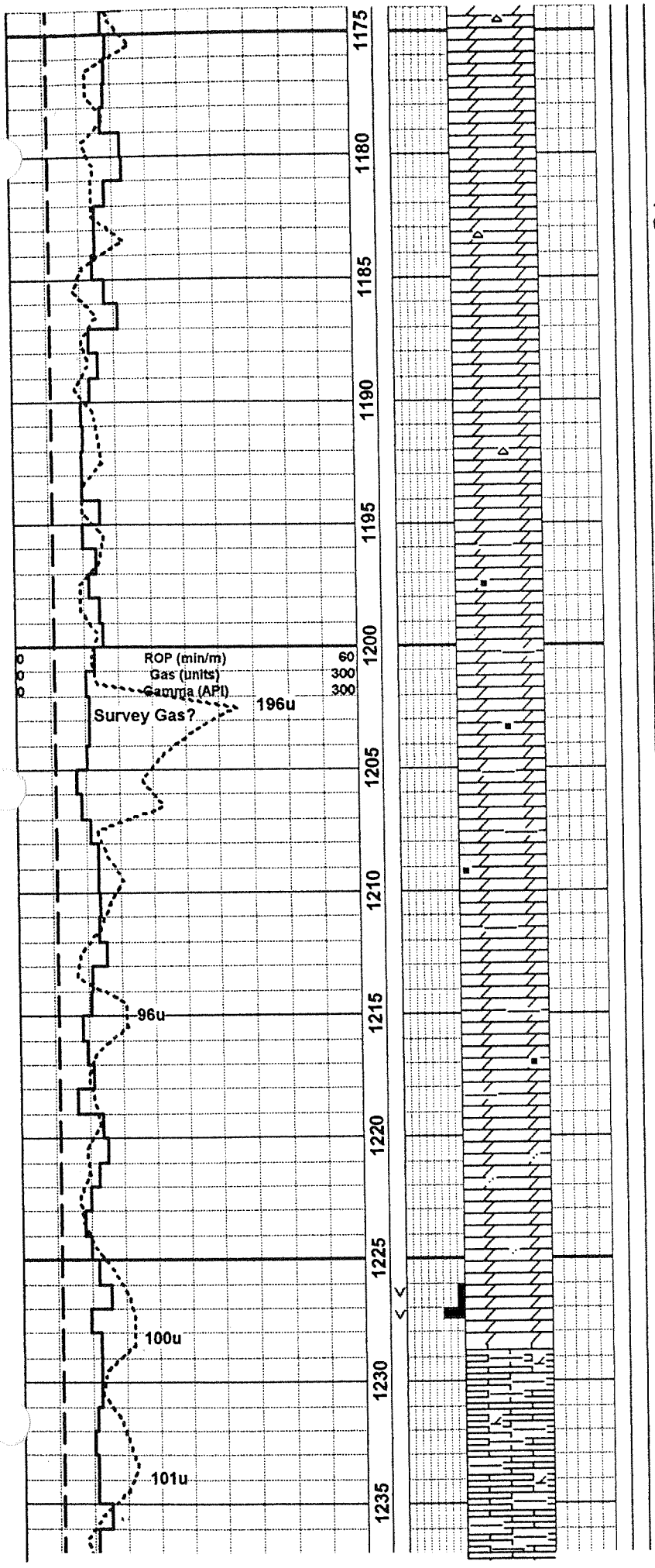
1119.0-1132.0 MARBLE: gy, mas, predly dol, occ closed & open frac, occ bdd, 1118.9-1119.5 wk yel staining.

1132.0-1137.0 gy, predly dol, occ open & closed frac, occ yel stn & rr associated vug por, p vug & frac por (1%), n show.

1137.0-1153.2 gy - dk gy, predly dol, com planar smooth surface & occ rough irregular fracs, hem coatings on all fracs, rr yel stn on fracs, v abt fracs 1140.5-1142.5m, fracs predly vertical on a 2-3cm spacing, com moderate angle fracs on a 10-15cm spacing, occ vugs, best vugs occur over interval 1142.5-1143.5m & 1149.5-1150.8m , p frac & vug por (1-2%), n show.

1153.2-1162.0 MARBLE: gy, predly dol, mas, com chty ipt, mnr vugs, mnr fracs with f dolomite crystals.

1162.0-1182.5 MARBLE: gy, predly dol & chty ipt, com fracs / hem coatings, predly rr vugs & occ occ vugs over 1162.5-1163.5m, mnr vugs 1169.0-1171.0m, com fracs over 1166.0-1167.2 & 1168.5-1172.7, predly tt mnr frac & vuggy por (1-2%), n show.



1182.5-1196.0 MARBLE: gy - dk gy, predly dol, occ chty ipt, mas, rr open fracs, occ closed fracs / wh dol infill, rr vugs in incomplete vein infill.

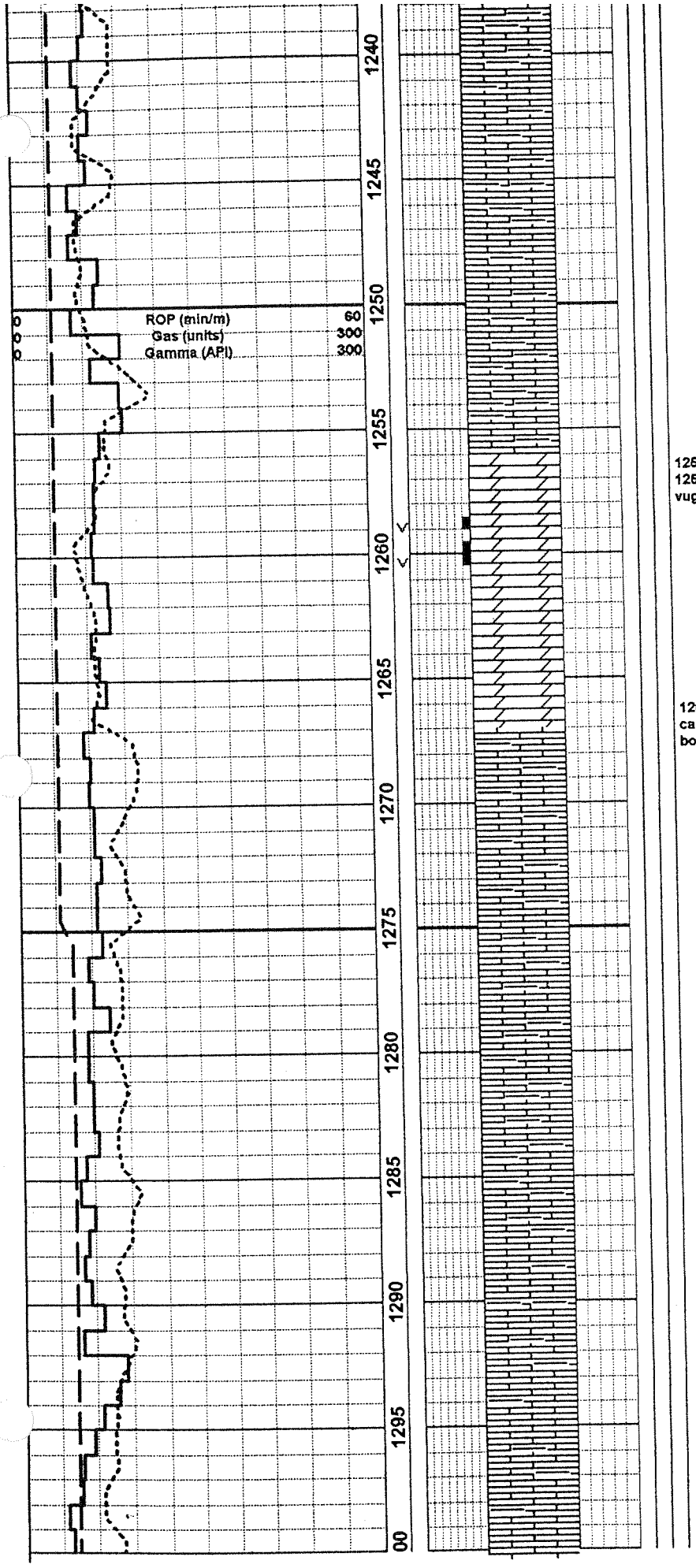
1196.0 - 1218.0 MARBLE: dk gy - blk, predly dol, com shly ipt, blk colour pos high organic content, com sh lam - thin bdd, occ open frac & occ wh hem & yel gn mineral coatings, occ closed frac / wh dol infill, core com breaks along sh lam, mnr CGL or boudins uncertain, So=40-50', mnr "S" fabrics.

1218.0-1226.1 MARBLE: gy - dk gy, predly dol, rr bdd, occ grainstone ipt, com closed frac / dol infill.

1226.1-1228.5 MARBLE: gy - lt gy, predly dol, occ mottoled, occ vugs 1226.0-1227.5, com vugs 1227.2-1227.5, vugs up to 5mm, vugs appear to be incomplete replacment and infill by dol of stringy calc mottles, mnr open frac / occ hem stn, hem rr associated with vugs, rr stylolite, predly vuggy por (1-3%), mnr f vuggy por 1227.2-1227.5 (7-10%), n show.

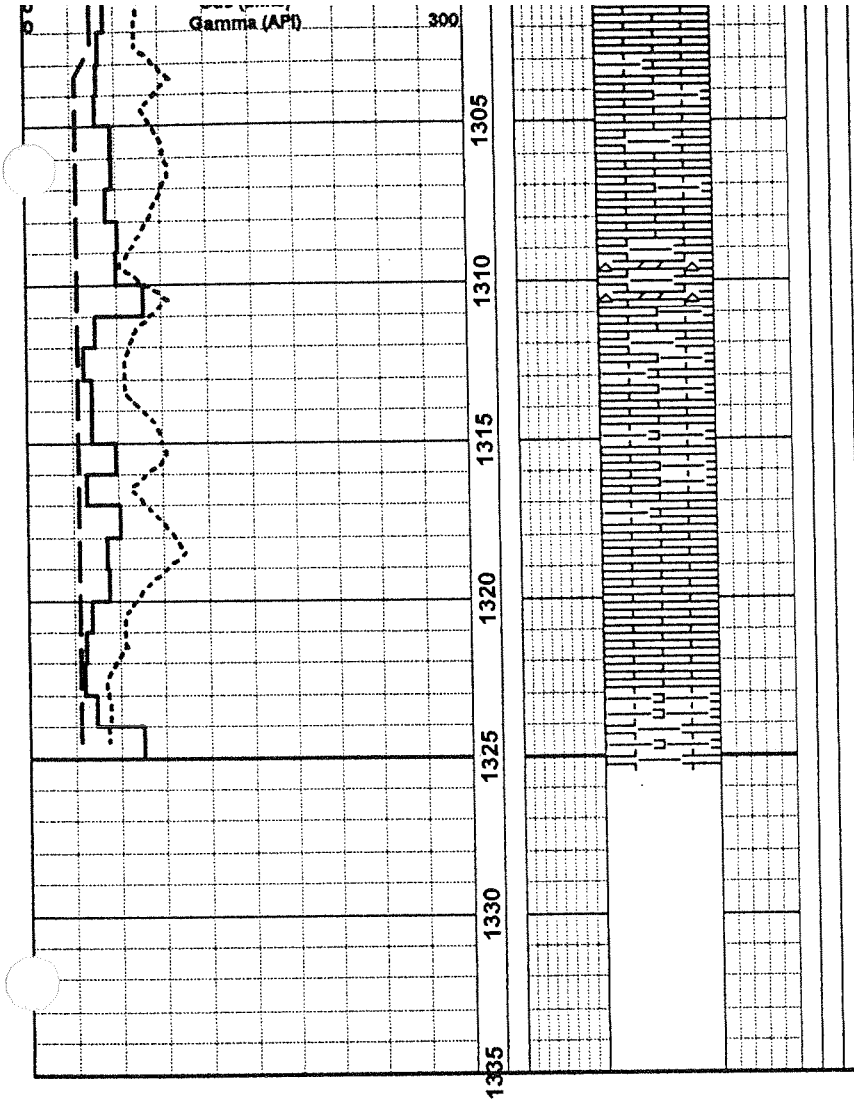
1228.5-1234.6 MARBLE: gy - lt gy, predly calc, com mottle, com closed frac at 40-50', with complete dol infill, So=45'.

1234.6-1256.2 MARBLE: lt & dk gy bands, interbedded phyllite & predly calc marble, interbedded on the 1-2cm scale, occ mottled & occ mas.



1256.2-1266.8 MARBLE: gy - dk gy, predly dol, mas / mnr dol veins, 1258.5-1260.6 com irregular fracs / hem & rr yel gn mineral, occ small vugs 1-2mm associated with fracturing.

1266.8-1308.5 MARBLE: lt & dk gy bands, interbedded phyllite & predly calc marble, interbedded on the 1-2cm scale, occ mottled & occ mas,rr boudins& "S"fabrics.



1308.5-1318.0 MARBLE: gy & blk, interbedded calc LS marble & sl calc blk slate - phyllite, 1309.5 & 1310.5 cht nod in 4-8cm wide dol veins, com "boudins", So=45', So = 70=80' toward base.

1318.0-1323.5 MARBLE: lt gy - gy, predly calc, brecciated, has appearance of a mottled grey & white LS that has been partially sheared and brecciated, leaving the resulting texture.

1323.5-1325.5 MARBLE: blk - dk gy, predly calc, abt SH lam & thin bds, unit is commonly folded in fairly open "C" folds, folds do not seem to share a common fold plane, folding pos fault related rather than the result of a regional deformation event.

--- TD = 1325.5m @ 07-11-02; 2100 ---

Western Adventure #2 Expanded Lithology Log

127.38-128.15 SILTSTONE: green to gray, massive.

128.15-129.0 SILTSTONE: purple to maroon, massive, sharp upper contact with gradational lower contact.

129.0-133.4 SILTSTONE: gray to green, massive, rare sandy in part, rare very calcareous and LIMESTONE in part, minor SHALE laminated.

133.4-134.3 SHALE: black to dark gray, low to moderate quality oil SHALE, fair petroleum smell on heating, laminated to bedded, minor thin zones (1cm) of soft sediment deformation.

134.3-139.0 SILTSTONE: predominantly gray green, occasional grading to very dark maroon purple, minor low angle calcareous veninlets most along faults with slickenslides, occasional shaley, no visible structure very massive.

139.0-146.2 SHALE: dark gray, hard, compact, occasional calcareous stringer, occasional very fine grain pyrite.

146.2-147.4 SILTSTONE: dark gray green, massive, compact, hard, common calcareous flecks.

147.4-154.45 SHALE: dark gray, compact, hard, massive, minor calcareous stringer.

154.45-155.40 SILTSTONE / SHALE: maroon to purple to slightly red in part, massive, occasional calcareous fleck.

155.40-160.3 SHALE: dark gray, as above.

160.3-161.4 SILTSTONE: maroon to purple, as above.

161.4-163.35 SHALE: dark gray, compact, hard, occasional very fine grain pyrite.

163.35-166.0 SILTSTONE: maroon, massive, occasional calcareous flecks, hard.

166.0-167.7 SHALE: dark gray intrerbedded with light gray, common bedded to laminated, basal 15cm consists of LIMESTONE Conglomerate 1 to 2cm clasts, Clasts are locally derived LIMESTONE of Carboniferious age.

167.7-169.05 SILTSTONE: maroon to purple to brown, massive, occasional calcareous fleck.

169.05-172.3 SHALE: interbedded and laminated light to dark gray, predominantly laminated to bedded, occasional massive, light gray SHALE very calcareous and LIMESTONE in part, So=0.

172.3-175.5 SHALE: maroon to dusky brown, hard, massive, occasional calcareous flecks.

175.5-179.0 SHALE / SILTSTONE: gray to slightly gray green, occasional black in part, massive, calcareous veins with occasional slickenslides at 178.8m and 176.8m.

179.0-180.70 SILTSTONE: gray green, massive, occasional pyrite.

180.70-185.6 SHALE: dark gray to black, bedded to laminated, predominantly black and organic rich near base, fair oil SHALE, So=0 to 10.

185.6-187.0 SILTSTONE: gray green, massive, common pyrite.

187.0-188.7 SHALE: dark gray to black, black and organic rich near base, fair oil SHALE.

188.7-190.2 SILTSTONE: gray to dark gray, massive, common pyrite.

190.2-194.8 SHALE: dark gray to gray, occasional slightly gray green, silty in part, massive, very hard.

194.8-196.3 SILTSTONE: gray to green, massive, common pyrite, occasional calcareous fleck.

196.3-198.24 SHALE: dark gray to black, laminated, varved, occasional thinly bedded to laminated siltstone.

198.24-199.34 SILTSTONE: gray, massive, common pyrite, occasional calcareous flecks.

199.34-202.40 SHALE: gray to black, laminated to bedded, common silty in part, basal 20cm has up to 1cm LIMESTONE clasts in sub angular calcareous mud matrix, just above conglomerate minor cross bedding.

202.4-203.74 SILTSTONE: gray, massive, common pyrite, occasional calcareous fleck.

203.74-205.1 SHALE: dark gray to black, laminated to occasional bedded, minor flame structure, basal 20cm has similar LIMESTONE as above.

205.1-205.6 SILTSTONE: gray green, occasional calcareous fleck.

205.6-207.0 SHALE: dark gray to black, massive, hard.

207.0-208.50 SILTSTONE: maroon to dusky brown, massive, hard.

208.5-209.5 SHALE: black to dark gray, massive, hard, rare laminated.

209.5-210.3 SILTSTONE: gray green, occasional slightly maroon, massive, occasional calcareous fleck.

210.3-215.7 SHALE: dark gray to occasional black, occasional silty in part, silty 212.3 to 212.9, laminated near base and top, massive in center.

215.7-216.5 SILTSTONE: gray, massive, occasional calcareous fleck.

216.5-217.1 SILTSTONE: maroon to dusky brown, occasional calcareous fleck, massive, hard.

217.1-218.9 SHALE: black to gray, silty near top, limy near base, common bedded to laminated.

218.9-221.1 SILTSTONE: maroon to dusky brown, massive, minor laminated gray SHALE 1 medium from top for 40cm.

221.1-222.1 SILTSTONE:SHALE: gray to black, laminated to bedded, calcareous in part.

222.1-223.3 SILTSTONE: maroon to brown, masssive, homogeneous.

223.3-224.9 SHALE: dark gray to light gray, laminated to occasional bedded, calcareous, So=0.

224.9-226.1 SILTSTONE: maroon to brown, massive, common calcareous flecks.

226.1-228.1 SHALE:black to gray, laminated to bedded, calcareous in part, So=0.

228.1-228.8 SILTSTONE: maroon to brown, as above.

228.8-229.3 SHALE: black to dark gray, laminated.

229.3-230.7 SILTSTONE: brown, massive, occasional calcareous fleck.

230.7-231.4 SHALE: gray to slightly gray green, laminated to bedded.

231.4-232.1 SILTSTONE: maroon, as above.

232.1-233.9 SHALE: gray to black, laminated to bedded, minor thin Oil SHALE, oil SHALE occasionally exhibits dull to bright yellow dry fluorescence, no fluorescence cut, possible mineral fluorescence i.e. LIMESTONE or calcite.

233.9-235.0 SILTSTONE brown to maroon, massive, gray green at top of unit.

235.0-236.4 SHALE: gray to black, occasional thin Oil SHALE laminated, oil SHALE occasionally exhibits dull to bright yellow dry fluorescence, no fluorescence cut.

236.4-238.2 SILTSTONE: brown to maroon, as above.

238.2-239.3 SHALE: SHALE: dark gray to gray, as above, occasional thin Oil SHALE.

239.3-243.9 SILTSTONE: predominantly brown to maroon, minor gray, common calcareous flecks.

243.9-245.0 SHALE: gray to occasional black, laminated to bedded, occasional Oil SHALE; 244.4 3 to 4cm thick laminated very fine grain LIMESTONE SANDSTONE, appears recrystalized, tight, no shows.

245.0-245.7 SILTSTONE: brown, massive, common calcareous flecks.

245.7-248.2 SHALE: dark gray to black, predominantly laminated to bedded, occasional Oil SHALE near base, oil SHALE occasionally exhibits dull to bright yellow dry fluorescence, no fluorescence cut, possible mineral fluorescence i.e. LIMESTONE or calcite.

248.2-287.7 SHALE: light gray to dark gray, occasional slightly blue, minor black, massive to minor laminated, occasional silty, 20 to 30cm siltstone stringer at 277.0 and 282.9, rare thin laminated Oil SHALE, very homogeneous, hard.

287.7-288.3 SILTSTONE: gray to slightly gray green, massive, calcareous, common pyrite.

288.3-290.1 SHALE: gray to dark gray, laminated to bedded.

290.1-292.1 SILTSTONE: gray to dark gray green, massive, minor pyrite, common SHALEly in part.

292.1-292.9 SHALE: black with occasional light gray carbonaceous beds, common soft sediment deformation, occasional Oil SHALE.

292.9-294.4 SILTSTONE: gray green, massive, common pyrite.

294.4-295.5 SHALE: dark dark to light gray, laminated to bedded, So=0 to 10.

295.5-296.9 SILTSTONE: gray green, massive, common pyrite.

296.9-297.6 SHALE: as above.

297.6-301.7 SILTSTONE: green gray, notable colour change, common pyrite; broken core 302.0 to 302.5 with slicks and thin calcareous fractures.

301.7-303.3 SHALE: dark to light gray, laminated to bedded, minor Oil SHALE.

303.3-306.1 SILTSTONE:green gray, as above.

306.1-307.6 SHALE:dark to light gray, carbonaceous rich layers, minor laminated Oil SHALE near base.

307.6-310.6 SILTSTONE: green gray, massive, occasional mottling.

310.6-311.3 SHALE: light and dark gray, occasional black, carbonaceous beds, approx 30% of interval is intpreted as Oil SHALE, Oil SHALE beds up to 8cm.

311.3-312.9 SILTSTONE: gray green, massive, occasional calcareous flecks.

312.9-314.4 SHALE: dark to occasional light gray, laminated to bedded, occasional Oil SHALE laminated.

314.4-315.6 SILTSTONE: gray green, as above.

315.6-317.4 SHALE: gray, homogeneous, massive.

317.4-318.9 SILTSTONE: gray green, massive, common calcareous flecks.

318.9-320.3 SHALE: dark gray to slightly maroon, massive.

320.3-322.0 SHALE: dark gray to light gray, minor calcareous nodule, occasional calcareous bed, laminated to bedded.

322.0-323.9 SILTSTONE: gray, massive, abundant calcareous flecks.

323.9-328.8 SHALE: gray to dark gray, occasional bedded to laminated, predominantly massive, minor laminated Oil SHALE.

328.8-335.9 SILTSTONE: brown to maroon, massive, occasional calcareous fleck, rare laminated, rare bedded and sandy in part, minor mottling.

335.9-338.4 SHALE: gray to slightly gray blue, hard, bedded to laminated.

338.4-345.60 SILTSTONE: brown, massive, minor calcareous flecks, minor mottling.

345.6-346.7 SHALE: gray to dark gray, laminated to bedded, laminated and bedded often disturbed by 3 to 5cm calcareous nodule in basal 40cm.

346.7-349.1 SILTSTONE: brown, as above.

349.1-350.4 SHALE: gray to dark gray, as above.

350.4-351.8 SILTSTONE: brown, massive, very homogeneous, rare calcareous fleck.

351.8-354.5 SHALE: gray to dark gray, predominantly massive, minor laminated.

354.5-355.8 SILTSTONE: brown, massive, common calcareous flecks.

355.8-357.4 SHALE: as above.

357.4-358.1 SILTSTONE: brown, massive, very common calcareous flecks.

358.1-367.0 SHALE: gray to dark gray, occasional slightly blue gray, predominantly massive with minor laminated, 1 to 2mm gypsum stringer at 364.1m.

367.0-368.2 SILTSTONE: brown, massive, common calcareous flecks.

368.2-371.3 SHALE: gray to dark gray, predominantly massive with minor laminated.

371.3-371.7 SILTSTONE: as above.

371.7-372.2 SHALE: dark gray, as above.

372.2-374.6 SILTSTONE: brown, massive, common mica, poor vuggy porosity (1 to 3%), vugs common completely filled with quartz, occasional vuggy infill has white calcareous core, no shows.

374.6-376.1 LIMESTONE: gray, grades upward into limy SHALE, predominantly pisolitic i.e. abundant soft sediment deformation and clasts up to 8cm.

376.1-379.2 SILTSTONE: brown to red, predominantly massive, minor thin bedded to laminated.

379.2-380.0 SHALE: gray, weak laminated, predominantly massive.

380.0-381.7 SILTSTONE: brown, weak laminated, predominantly massive, rare lower very fine grain SANDSTONE laminated.

381.7-382.5 SHALE: gray to slightly gray green, weak laminated.

382.5-384.9 SILTSTONE: brown, massive, very homogeneous.

384.9-386.5 SHALE: dark gray, weakly laminated to bedded.

386.5-387.6 SILTSTONE: brown, as above.

387.6-389.2 SHALE: dark gray, as above.

389.2-390.6 SILTSTONE: dark brown, minor bedded to laminated, predominantly massive, occasional calcareous fleck.

390.6-393.0 SHALE: dark gray, occasional gray green, massive, occasional laminated to bedded, predominantly massive.

393.0-396.5 SILTSTONE: brown to slightly red brown, occasional minor gray brown sections, massive, occasional calcareous flecks.

396.5-398.4 SHALE: gray, massive, occasional laminated.

398.4-400.8 SILTSTONE: brown to slightly red brown, massive, common calcareous flecks.

400.8-403.1 SHALE: gray, predominantly massive, occasional laminated, common silty in part.

403.1-404.0 LIMESTONE: gray, conglomerate, locally derived, occasional laminated in part, common shaley to silty in part.

Red Silts 406.0m

404.0-407.8 SILTSTONE: red to brown, massive, rare laminated, common calcareous fleck.

407.8-440.0 SILTSTONE: red to brown, laminated to thinly bedded, occasional mottle, rare gray very fine grain SANDSTONE laminated.

North Brook Formation 440.0m

440-441.0 SANDSTONE: red to pink, lower very fine to upper fine, minor medium grain, predominantly quartz with common feldspar grains, Angular to sub angular, medium to poor sorted, well sorted toward base, argillaceous cement at top giving way to gypsum cement at base, minor gypsum stringer, tight, no shows; basal 6cm is Conglomerate consisting of LIMESTONE clasts (<4cm) in sub angular limy mud martix.

441.0-442.2 SILTSTONE: red, massive, occasional sandy in part.

442.2-443.4 SANDSTONE: red, lower very fine to upper medium grain, normally graded, predominantly feldspar with common quartz grains, Angular, medium sorted, calcareous cement, poor intergranular porosity (2 to 3%), no shows. Basal 10cm is calcareous Conglomerate with pebble <6mm, cross bedding evident just above Conglomerate in M grain SANDSTONE.

443.4-444.7 SILTSTONE: red, massive, occasional sandy in part.

444.7-445.3 SANDSTONE: red, normally graded, lower very fine to upper medium grain, argillaceous in part at top, predominantly feldspar with quartz grains, Angular, gypsum cement, tight, no shows.

445.3-445.5 SILTSTONE: as above.

445.5-446.8 SANDSTONE: red, lower very fine to upper medium grain, predominantly feldspar and quartz, common argillaceous at top, Angular, medium sorted, gypsum cement, tight, no shows.

446.8-451.6 SILTSTONE: red, predominantly massive, minor laminated in part, occasional sandy in part, rare lower very fine grain SANDSTONE stringer, minor mottle.

451.6-463.3 SILTSTONE: red, as above, common mottle, mottles <5cm.

463.3-464.2 SILTSTONE: red, laminated to occasional bedded, common sandy in part.

464.2-464.7 SANDSTONE: red, lower very fine grain to lower medium grain, normally graded, predominantly pink feldspar with minor quartz, r to Angular, medium sorted, argillaceous and gypsum cement, poor vuggy porosity (1 to 2%), vugs are inferred to be secondary porosity that are now filled with gypsum and minor calcite.

464.7-469.5 SILTSTONE: as above, common mottle, common sandy in part.

469.5-470 SANDSTONE: red, lower very fine to lower medium grain, normaly graded, predominantly pink feldspar with quartz, Angular to sub angular, medium sorted, argillaceous and gypsum cement, poor vuggy porosity (1 to 2%), vugs are inferred to be secondary porosity as above.

470.0-482.3 SILTSTONE: red, laminated, occasional sandy in part, rare thin sandy beds, common mottle, rare gypsum stringer.

482.3-486.6 SILTSTONE: red, laminated to massive, rare mottle toward base.

486.6-487.7 SANDSTONE: light gray and pink to red, lower very fine to upper very coarse, normally graded, predominantly quartz with feldspar, medium sorted, Angular to sub angular, argillaceous and gypsum cement, tight, no shows.

487.7-488.1 SILTSTONE: red, massive, occasional laminated, common mottle.

488.1-488.9 SANDSTONE: red to pink, lower very fine to upper very coarse, predominantly feldspar toward top and quartz toward base, Angular to sub angular, medium sorted, argillaceous cement toward top, gypsum cement toward base, tight, no shows.

488.9-489.8 SILTSTONE: red, massive to occasional laminated, minor mottle.

Intermediate Casing = 488.0 09 to 12 to 02 at 00:30

489.8-491.6 SANDSTONE: red, fine to coarse grain, predominantly quartz with occasional feldspar, laminated to bedded, medium sorted, Angular to r, gypsum and argillaceous cement, tight.

491.6-492.4 SILTSTONE: as above, gradational contact into unit below.

492.4-494.5 SANDSTONE: red, very fine to medium grain, predominantly quartz and feldspar, laminated to bedded, Angular to sub angular, medium to poor sorted, argillaceous and gypsum cement, tight.

494.5-496.8 SILTSTONE with SANDSTONE: red, massive with occasional laminated, occasional calcareous mottle, common grading in part to very fine to fine grain SANDSTONE, common SANDSTONE stringer.

496.8 -498.0 SANDSTONE: gray to white, fine to coarse grain, predominantly qzt with feldspar, Angular to sub angular. medium sorted, occasional mottle, argillaceous and gypsum cement, occasional calcareous cement, tight.

498.0-498.6 SANDSTONE: red, very fine to fine grain, predominantly feldspar and quartz, Angular to sub angular, medium sorted, common argillaceous in part, laminated to bedded, tight.

498.6-499.4 SILTSTONE: as above.

499.4-500.0 SANDSTONE: gray to red, fine to very coarse grain, predominantly quartz and feldspar, Angular to sub angular, medium to poor sorted, massive to occasional laminated, argillaceous and gypsum cement, tight.

500.0-503.8 SILTSTONE: red, massive, minor mottle, occasional sandy in part.

503.8-504.9 SILTSTONE: as above, common sandy in part, common grading to lower very fine grain SANDSTONE.

504.9-505.5 SANDSTONE: red, fine to medium grain, predominantly quartz and feldspar, laminated, occasional cross beds, well sorted, Angular to sub angular, argillaceous and gypsum cement, tight.

505.5-508.2 SILTSTONE: red, common sandy in part, predominantly feldspar with quartz, common grading in part to lower very fine grain SANDSTONE, common SANDSTONE stringer, massive to occasional laminated.

508.2-511.5 SANDSTONE: red to pink, medium to fine grain, laminated, Angular to sub angular, well sorted, occasional silty in part, basal 20cm has common SHALE rip up clast, sharp basal contact, gypsum and argillaceous cement, tight.

511.5-512.0 SILTSTONE: as above, common mottle.

512.0-513.0 SILTSTONE: red, predominantly feldspar, common grading in part to lower very fine grain SANDSTONE, common sandy in part, laminated to massive.

513.0-513.4 LIMESTONE: white to light gray, caleche nodules, rare root fossil.

513.4-517.7 SILTSTONE: red, common mottle, occasional sandy in part, laminated to bedded, core common broken.

517.7-520.9 SANDSTONE: red to occasional pink, fine to medium grain, occasional coarse to very coarse grain, minor pebble up to 10mm, predominantly quartz, massive to occasional laminated, Angular to sub angular, medium sorted, argillaceous and minor gypsum cement, fine to poor intergranular porosity (3 to 6%), occasional fine intergranular porosity (6 to 9%), no shows.

520.9-522.5 SANDSTONE: red, very fine to fine grain, occasional medium grain, common silty in part, poor sorted, common grdrg to SILTSTONE, massive with minor laminated, occasional mottle.

522.5-523.8 SANDSTONE: red, fine to coarse grain, very coarse grain at base, predominantly quartz with feldspar, Angular to sub angular, well sorted, laminated to bedded, basal 20cm abundant SHALE rip up clasts, argillaceous and minor gypsum cement, tight, no shows.

523.8-535 SILTSTONE: red, occasional grading to lower very fine grain SANDSTONE, occasional sandy stringer, rare pebble up to 30mm, basal 1m common sandy in part.

535.0-536.4 SANDSTONE: red, very fine to medium grain, predominantly quartz, well sorted, Angular to sub angular, argillaceous and gypsum cement, tight.

536.4-538.0 SILTSTONE: red, as above.

538.0-538.5 SANDSTONE: red to pink, very fine to medium grain, predominantly quartz, well sorted, laminated, argillaceous cement, tight.

538.5-540.9 SILTSTONE: red, as above.

540.9-542.6 SANDSTONE: red, fine to medium grain, occasional coarse to very coarse grain, basal 70cm Conglomerate with pebble up to 4cm, predominantly quartz, medium sorted, Angular to sub angular, minor rounded to r, argillaceous and gypsum cement, tight.

542.6-543.5 SANDSTONE: red, very fine to medium grain, predominantly quartz, common silty in part, confused section of bedded SANDSTONE and SILTSTONE, abundant cut and scour, occasional mottle, argillaceous cement, tight.

543.5-548.4 SILTSTONE: red, massive, occasional mottle, 20cm of coarse grain SANDSTONE at 545.6m.

548.4-548.8 SANDSTONE: red, very fine to medium grain, predominantly quartz with feldspar, pebble at base, well sorted, Angular to sub angular, minor r, argillaceous and gypsum cement, tight.

548.8-549.4 SILTSTONE: red, laminated, contorted, mottle, minor sandy in part.

549.4-549.9 SANDSTONE: red, medium to coarse grain, predominantly quartz with feldspar, pebble up to 2 cm, medium sorted, Angular to sub angular, argillaceous and gypsum cement, tight.

549.9-550.4 SILTSTONE: as above.

550.4-551.6 SANDSTONE: red, fine to medium grain, predominantly quartz, sharp basal contact, base has abundant SHALE rip up clasts, poor sorted, Angular, argillaceous cement, tight.

551.6-561.8 SILTSTONE: red, laminated, occasional very fine grain SANDSTONE stringer, common mottle.

561.8-564.8 SANDSTONE: red to pink, fine to medium grain, occasional very coarse sections, basal 40cm Conglomerate pebble supported up to 3cm, laminated, well sorted, Angular to sub angular, minor r, basal 40cm has abundant gypsum cement, predominantly argillaceous and hematite cement, pervasive gypsum cement towards base, predominantly fine intergranular porosity(6 to 9%), no shows.

564.8-567.7 SILTSTONE: red, laminated, common mottle, occasional sandy in part.

567.7-569.8 SANDSTONE: red, very fine to coarse grain, predominantly quartz, rare pebble up to 4cm, occasional granule, medium sorted, Angular to sub angular, argillaceous and hematite cement, fine ingran porosity (6 to 9%), no shows.

569.8-571.2 SILTSTONE: red, laminated, rare sandy in part.

571.2-571.6 SANDSTONE: red, medium to very coarse grain, predominantly quartz with feldspar, sub angular to r, medium sorted, argillaceous and occasional gypsum cement, tight.

571.6-572.6 SILTSTONE: red, massive, common mottle.

572.6-574.3 SANDSTONE: red, fine to coarse grain, predominantly quartz with feldspar, common SHALE rip up clasts, Conglomerate in part towards base, poor sorted, sub angular to r, argillaceous cement, minor poor intergranular porosity (3 to 4%), no shows.

574.3-577.5 SILTSTONE: as above.

577.5-579.5 SILTSTONE: red, massive to laminated, occasional bedded, common SANDSTONE stringer, common sandy in part.

579.5-581.8 SANDSTONE: red, fine to very coarse grain, occasional pebble up to 1cm, predominantly quartz and feldspar with SHALE rip up clasts, poor sorted, Angular to sub angular, argillaceous cement, tight.

581.8-583.7 SANDSTONE: red to pink, very fine to very coarse grain, occasional pebble up to 1cm, predominantly quartz with feldspar, sub angular to r, poor sorted, argillaceous in part, common SILTSTONE and SHALE stringer, argillaceous cement, tight.

583.7-584.0 SANDSTONE: red, fine to medium grain, predominantly quartz with minor feldspar, massive, sub angular, well sorted, argillaceous and hematite with minor gypsum cement, poor to fine intergranular porosity (3 to 6%), no shows.

584.0-586.3 SANDSTONE: red, very fine to cc grain, predominantly quartz, argillaceous in part, sub angular to r, poor sorted, tight.

586.3-587.0 SANDSTONE: red, fine to medium grain, predominantly quartz with minor feldspar, massive, sub angular, well sorted, argillaceous and hematite with minor gypsum cement, poor to fine intergranular porosity (2 to 3%), no shows.

587.0-588.1 SANDSTONE: red to pink, very fine grain, predominantly quartz with feldspar, sub angular to r, well sorted, argillaceous cement, argillaceous in part, weak calcareous cement, tight.

588.1-589.4 SILTSTONE: red, laminated, mottle.

589.4-590.7 SANDSTONE: red, fine to coarse grain, predominantly quartz, sub angular to r, well sorted, argillaceous cement, poor intergranular porosity (2 to 3%), no shows.

590.7-591.6 SILTSTONE: red, as above.

591.6-593.3 SANDSTONE: red, fine to very coarse grain, predominantly quartz, sub angular to r, occasional rounded, well sorted, Conglomerate towards base, shalely at 592.5m, poor intergranular porosity (2 to 3%), no shows.

593.3-595.0 SILTSTONE: brown, mottle, laminated.

595.0-596.6 SANDSTONE: red, fine to very coarse, predominantly quartz with feldspar, laminated to bedded, abundant SHALE rip up clasts, Conglomerate towards base, aby gypsum cement towards base, argillaceous cement, tight.

596.6-609.4 SILTSTONE: red, becoming brown gray toward basal 2m, laminated, abundant mottle, basal 1m sandy in part and calcareous.

609.4-614.7 SANDSTONE: brown gray, fine to very coarse grain, predominantly quartz with feldspar, laminated and massive, occasional pebble up to 1cm in basal 1.5m, common SHALE rip up clasts in basal 1.5m, predominantly well sorted with occasional poor sorted, sub angular to r, argillaceous and hematite cement, rare gypsum cement, fine to good intergranular porosity (8 to 12%), no shows.

614.7-623.0 SILTSTONE: red, occasional shaley, common mottle, very common calcareous banding, massive and occasional laminated.

623.0-628.3 SILTSTONE: red, common mottle, common grading in part to lower very fine grain SANDSTONE, sandy, laminated and rare bedded, minor medium grain sandstone stringer.

628.3-635.5 SILTSTONE: red, massive to laminated, common mottle, common calcareous stringer, occasional sandy in part.

635.5-637.9 SANDSTONE: red, very fine to medium grain, basal 50cm Conglomerate, predominantly quartz with feldspar, sub angular to r, well sorted, argillaceous cement, tight.

637.9-648.5 SILTSTONE: red, massive, mottle.

648.5-650.5 SANDSTONE: red to pink, very fine to medium grain, common silty, predominantly quartz with feldspar, poor sorted, sub angular to r, weak calcareous cement and argillaceous cement, tight.

650.5-652.0 SANDSTONE: red, very fine to medium grain, predominantly quartz with feldspar, common silty in part, poor sorted, sub angular to r, argillaceous cement, tight.

652.0-652.7 SILTSTONE: maroon to gray, massive, common mottle.

652.7-655.5 SANDSTONE: gray grading to red at base, very fine to coarse grain, occasional pebble up to 1cm, predominantly quartz with feldspar, occasional mica, laminated, sub angular to r, medium sorted, argillaceous cement, tight.

655.5-663.5 SILTSTONE: red, massive, common mottle.

663.5-664.1 SANDSTONE: brown gray, medium to coarse grain, predominantly quartz with feldspar, sub angular to r, medium to well sorted, argillaceous and weak calcareous cement, tight.

664.1-676.5 SILTSTONE: red, massive, common mottle, occasional fracture with slicks and thin occasional with thin calcareous veinlets, common fractures 666.0 to 667.0m and 668.6 to 671.0m.

676.5-677.2 SANDSTONE: brown, very fine to fine grain, predominantly quartz with feldspar, sub angular to r well sorted, laminated, argillaceous and hematite cement, tight.

677.2-677.8 SILTSTONE: as above.

677.8-682.2 SANDSTONE: red b to light brown, occasional gray, very fine to very coarse near base, predominantly quartz with feldspar, sub angular to r, rare rounded, medium sorted, laminated to bedded, minor pebble up to 1cm, argillaceous and hematite cement, minor calcareous and gypsum cement, poor intergranular porosity (2 to 3%), no shows.

682.2-684.0 SILTSTONE: red, massive, mottle.

684.0-685.6 SANDSTONE: brown, fine to coarse grain, predominantly quartz, very well sorted, sub angular to r, argillaceous with weak calcareous cement, poor intergranular porosity (2 to 3%), no shows.

685.6-686.0 SILTSTONE: red to brown, common mottle.

686.0-690.4 SANDSTONE: brown, very fine to very coarse grain, predominantly quartz with feldspar, occasional pebble up to 3cm, common granule, occasional SHALE rip up clast, sub angular to r, poor sorted, minor well sorted sections <10cm, shaley in part, very immature SANDSTONE, gypsum and argillaceous cement, gypsum cement occurs as dusty infill rather than crystaline, poor intgranular porosity (2 to 3%), no shows.

690.4-692.8 SILTSTONE: red, occasional sandy in part, minor thin SANDSTONE stringer, occasional mottle, massive.

692.8-694.0 SANDSTONE: brown, medium to very coarse grain, pebble up to 3cm, predominantly quartz with feldspar, occasional matrix supported Conglomerate, medium to poor sorted, sub angular to r, plb r to rounded, gypsum and weak calcareous cement, tight.

694.0-694.5 SILTSTONE: red, massive, mottle.

694.5-698.5 SANDSTONE: brown, very fine to medium grain, coarse to very coarse in basal 1m, predominantly quartz and feldspar, sub angular to rounded , well sorted, occasional medium sorted, gypsum and weak calcareous cement, stronger calcareous cement in basal 2m, tight.

698.5-700.6 SILTSTONE: red to brown, massive, mottle.

700.6-705.8 SANDSTONE: brown, very fine to very coarse grain, predominantly quartz and feldspar, sub angular to r, poor sorted, gypsum cement with weak calcareous cement, tight.

705.8-707.0 SILTSTONE: brown, massive, mottle, sandy toward base.

707.0-707.9 SANDSTONE: brown gray, medium to coarse grain, predominantly quartz and feldspar, minor mica, sub angular to r, rare pebble up to 2cm, medium to poor sorted, gypsum and weak calcareous cement, tight.

707.9-708.7 SILTSTONE: as above.

708.7-711.3 SANDSTONE: brown to maroon, coarse to fine grain, predominantly quartz and feldspar, sub angular to r, well sorted, shaley toward basal 70cm, argillaceous and gypsum cement, tight.

711.3-712.8 SILTSTONE: as above, occasional sandy in part.

712.8-713.2 SANDSTONE: brown to pink, fine to medium grain, predominantly quartz and feldspar, medium sorted, sub angular to r, gypsum and weak calcareous cement, tight.

713.2-714.3 SILTSTONE: red to brown, common sandy in part, laminated to massive.

714.3-716.7 SANDSTONE: brown, medium to very coarse grain, occasional pebble upp to 1cm, basal 1m is Conglomerate granules, medium to poor sorted, sub angular to r, pebble r to rounded, predominantly tight with poor intergranular porosity (2 to 3%) over interval 715.1 to 715.5, no shows.

716.7-721.5 SANDSTONE: red brown, very fine grain, predominantly quartz and feldspar, common grading to SILTSTONE, occasional SHALEly in part, basal 1m predominantly sandy very coarse to medium grain, argillaceous gypsum and weak calcareous cement, tight.

721.5-724.5 SILTSTONE: brown to red, occasional sandy, occasional thin Conglomerate beds, occasional mottle, predominantly massive.

724.5-726.0 SANDSTONE: brown, medium to very coarse grain, CONGLOMERATE in basal 70cm, predominantly quartz and feldspar, medium sorted, pebble up to 3 cm, calcareous and gypsum cement, tight.

726.0-727.1 SILTSTONE: brown, sandy in part, occasional suspended pebble up to 2cm.

727.1-733.5 SANDSTONE: brown, very fine to medium grain, predominantly quartz and feldspar, sub angular to rounded, poor sorted, calcareous and gypsum cement, tight.

733.5-737.5 SILTSTONE: red to brown, occasional sandy in part, common mottle.

737.5-761.5 SANDSTONE: brown, very fine to fine grain, occasional suspended pebble up to 5cm, basal 1m has boulders up to 30cm, massive to laminated, calcareous and minor gypsum cement, tight.

761.5-780.5 MARBLE: gray to light gray, massive to "marble" texture, predominantly calcareous, crystalline, crystals up to 2mm, occasional calcite filled fracture, occasional stylolite, occasional fracture filled with North Brook age mud, tight.

780.5-787.5 MARBLE: gray to light gray, predominantly calcareous, massive to occasional bedded, occasional thin shaley laminated, rare fractures, So=45'.

787.5-780.5 MARBLE: light gray to white, minor pink, predominantly calcareous, occasional minor thin schist laminated, massive to thin bedded, rare thin chert veins, open fractures 791.0m and 792.0m.

800.3-802.5 MARBLE: light gray, pink toward base, massive, predominantly dolomite and calcareous in part.

802.5-815.7 MARBLE: light gray, massive to bedded, predominantly calcareous, minor thin schisty laminated, minor chert vein and chert filled fractures, open fracture 814.3m.

815.7-817.0 MARBLE: light gray to white, predominantly dolomite with minor calcareous, bedded to rare chert vein and chert filled fractures.

817.0-825.9 MARBLE: white, predominantly calcareous, finer grained than above, minor bedded predominantly massive.

825.9-827.0 MARBLE: white, predominantly dolomite with minor calcareous, occasional chert veins, occasional thin SHALE laminated, So=45'.

827.0-831.9 MARBLE: predominantly calcareous, minor thin SHALE laminated, minor chert, open near vertical fracture 827.5 to 829m.

831.9-836.3 MARBLE: white, predominantly dolomite with minor calcareous, rare SHALE laminated, very fine grained.

836.3-836.9 MARBLE: white to light gray and pink, predominantly calcareous, massive, occasional shaley in part.

836.9-838.9 MARBLE: white, massive, predominantly dolomite with minor calcareous, cryptocrystalline.

838.9-842.5 MARBLE: white, occasional light gray, predominantly calcareous, weak bedded.

842.5-850.0 MARBLE: white to gray, predominantly calcareous, common SHALE laminated, basal 6cm is fault breccia and fault along the So, So=45'.

850.0-851.6 MARBLE: white, predominantly dolomite, massive, cryptocrystalline, common chert filled closed fractures.

851.6-853.6 MARBLE: white to light gray, occasional pink, predominantly calcareous, occasional SHALE laminated.

853.6-854.8 MARBLE: white to gray, predominantly dolomite, massive to weak bedded, minor chert filled fractures.

854.8-865.3 MARBLE: gray to light gray, occasional white, predominantly calcareous, occasional SHALE laminated, minor mottled near top 2m, 855.0m open 45' fracture.

865.3-868.9 MARBLE: gray to dark gray, predominantly calcareous, common SHALE laminated and SHALE beds up to 1cm, 868.0 to 868.5m very common SHALE.

868.9-875.1 MARBLE: gray, predominantly calcareous, common large scale mottle, massive.

875.1-877.1 MARBLE: white, predominantly dolomite, thin bedded, minor SHALE laminated, cryptocrystalline to microcrystalline.

877.1-878.3 MARBLE: white, predominantly calcareous, massive.

878.3-880.4 white, predominantly dolomite, massive occasional chert veins.

880.4-888.8 MARBLE: white to gray, predominantly calcareous, basal 1m common SHALE, massive to occasional bedded.

888.8-894.2 MARBLE: white to gray, predominantly dolomite, cryptocrystalline to microcrystalline, common chert veins.

894.2-897.6 MARBLE: gray to dark gray, predominantly calcareous, weak bedded, So=50'.

897.6-902.0 MARBLE: gray, predominantly calcareous, common thin SHALE laminated, common crenulated, rare "pinch and swell" structures, rare "S" fabrics.

902.0-907.5 MARBLE: white to light gray, predominantly calcareous, massive, rare SHALE laminated, rare SHALE laminated.

907.5-911.5 MARBLE: gray, predominantly calcareous, common SHALE laminated, rare SHALE beds, 908.0 to 909.0m zone of brittle deformation.

911.5-913.0 MARBLE: gray to dark gray, predominantly calcareous, common mottled, massive.

913.0-913.5 MARBLE: white, predominantly calcareous, massive.

913.5-914.8 MARBLE: white, predominantly dolomite, occasional vein of calcite and chert.

914.8-917.0 MARBLE: gray to dark gray, occasional white, predominantly calcareous, minor SHALE laminated.

917.0-919.9 MARBLE: gray to dark gray, predominantly dolomite, rare SHALE laminated, minor chert and calcareous veins.

919.9-921.5 MARBLE: dark gray, predominantly calcareous, common SHALE laminated and thin SHALE beds, common "pinch and swell" structures, common "S" fabrics, So=55'.

921.5-922.5 MARBLE: light gray, predominantly calcareous, minor SHALE laminated, occasional weak light gray mottling.

922.5-944.0 MARBLE: white to occasional light gray, predominantly calcareous, rare SHALE laminated.

944.0-950.0 MARBLE: light gray, predominantly calcareous, rare weak mottle, minor SHALE laminated.

950.0-953.1 MARBLE: gray to occasional dark gray, predominantly calcareous, massive, common mottling.

953.1-960.6 MARBLE: light gray, predominantly calcareous, massive, rare weak mottle.

960.6-963.5 MARBLE: gray to dark gray, predominantly calcareous, common mottle.

963.5-964.5 MARBLE: gray, predominantly calcareous, massive, minor SHALE laminated.

964.5-967.3 MARBLE: gray, predominantly dolomite, common chert and calcareous veins.

967.3-970.5 MARBLE: gray, predominantly calcareous, common SHALE stringer and laminated, So=65'.

970.5-971.9 MARBLE: gray, predominantly dolomite, common calcareous and chert veins.

971.9-973.2 MARBLE: gray, predominantly calcareous, massive, weak mottle, So=45'.

973.2-974.5 MARBLE: gray, white and occasional light brown to pink, bedded to laminated, common argillaceous in part with SHALE laminated and beds up to 1cm, common poor developed "pinch and swell" structures and "S" fabrics.

974.5-976.1 MARBLE: gray, predominantly calcareous, rare SHALE laminated at base, massive.

976.1-978.1 MARBLE: gray, predominantly dolomite, common irregular closed fractures filled with chert, calcareous, and hematite, occasional partially open fractures with hematite coatings, occasional closed fractures with yellow staining, poor vuggy secondary porosity (1 to 3%) associated with yellow stain veining.

978.1-979.0 MARBLE: white to light gray, predominantly calcareous, weak mottle, massive.

979.0-981.0 MARBLE: gray to dark gray, predominantly dolomite, common chert in part, common "compressional" fractures i.e. perpendicular to core axis and mechanically induced, occasional closed hematite lined fractures.

981.0-984.9 Chert: gray, dolomite and calcareous in part, common laminated, common calcareous and chert veins.

984.9-985.2 MARBLE: gray, predominantly calcareous, abundant chert, dolomite in part, bedded, minor open fracture with hematite coating.

985.2-985.8 MARBLE: gray, predominantly calcareous, bedded, weak mottle, occasional chert.

985.8-988.3 MARBLE: white to gray, interbedded calcareous and dolomite beds on sub angular 20 to 30cm scale, occasional chert in part.

988.3-989.3 Chert: gray, occasional calcareous and dolomite in part, abundant irregular fracture, abundant yellow stain along irregular fracture, fractures common with hematite coating, poor spotty vuggy secondary porosity (1 to 3%) associated with yellow stain veining.

989.3-990.0 MARBLE: gray, predominantly calcareous, bedded, weak mottle.

990.0-990.9 Chert: gray, massive, abundant irregular closed fracture with common hematite coatings, occasional yellow stain along fractures.

990.9-994.7 MARBLE: gray, predominantly calcareous, occasional dolomite in part, occasional chert in part, bedded to laminated, questionable Stromatoporoid.

994.7-998.8 MARBLE: gray, predominantly dolomite, common chert in part, common to abundant irregular fractures with hematite coatings.

998.8-1005.5 MARBLE: gray, predominantly dolomite, occasional chert in part, bedded to laminated, occasional Stromatoporoid at 1003.0 and 1002.5m, So=45'.

1005.5-1009.5 MARBLE: gray to dark gray, predominantly calcareous, common mottle, bedded, rare closed fracture, 1006.3m abundant fractures for 40cm.

1009.5-1011.1 MARBLE: white to gray, predominantly dolomite, laminated to bedded, minor calcareous veins.

1011.1-1011.8 MARBLE: white to gray, predominantly calcareous, thinly bedded.

1011.8-1014.6 MARBLE: white to cream, predominantly dolomite, predominantly massive, occasional calcareous veins, minor irregular fractures with hematite coatings from 1013.2m to 1013.4m.

1014.6-1016.2 MARBLE: gray, predominantly calcareous, bedded, weak mottle.

1016.2-1018.9 MARBLE: gray, predominantly dolomite, massive to occasional laminated, rare bedded, occasional cherty in part.

1018.9-1020.7 MARBLE: gray to dark gray, predominantly calcareous, bedded to occasional laminated, common mottle.

1020.7-1024.2 MARBLE: gray, predominantly dolomite, massive, occasional calcareous veins, minor closed fractures with hematite coatings.

1024.2-1028.6 Chert: gray to dark gray, predominantly chert with common dolomite and minor calcareous, common near vertical partially fractures, fractures 1024.2m to 1026.5m.

1028.6-1034.8 MARBLE: gray to light gray, predominantly dolomite with occasional chert, near vertical fractures from 1030 to 1031.0, occasional calcareous and chert veins.

1034.8-1035.2 MARBLE: light gray to white, predominantly calcareous, laminated to bedded, minor SHALE laminated.

1035.2-1037.7 MARBLE: light gray, minor light brown near base, predominantly dolomite, massive, occasional Stromatoporoid near base.

1037.7-1038.5 MARBLE: gray, predominantly calcareous, bedded, rare SHALE laminated, weak mottle, So=40'.

1038.5-1039.8 MARBLE: gray, light brown pink toward base, minor Stromatoporoid, very argillaceous in part toward basal 40cm.

1039.8-1041.5 MARBLE: gray to dark gray, predominantly calcareous, occasional mottle, weak bedded.

1041.5-1043.7 MARBLE: gray to dark gray, predominantly dolomite, common argillaceous and occasional cherty, minor irregular closed fractures with hematite coatings, 1043.8 open low angle fracture.

1043.7-1048.5 MARBLE: brown gray, predominantly dolomite, common argillaceous in part, common shaley laminated and thin beds, minor closed irregular fractures, 1044.2 angular fault with 10cm of calcareous orange gouge.

1048.5-1050.8 MARBLE: white to light gray, predominantly calcareous, massive, common calcareous veins, occasional irregular closed fractures with hematite lining.

1050.8-1052.7 MARBLE: lt gray to gray, predominantly dolomite, massive.

1052.7-1054.4 MARBLE: gray to dark gray, massive, predominantly calcareous, basal 0.5m common med to low angle fractures.

1054.4-1062.4 MARBLE: gray to dark gray, predominantly calcareous, common bedded to occasional massive, common mottle, minor closed fracture with hematite lining.

1062.4-1063.8 MARBLE: gray, predominantly dolomite, massive, rare calcareous veins.

1063.8-1064.5 Chert: white to pink, irregular chert nodules in light brown gray dolomite marble.

1064.5-1065.7 MARBLE: gray to light gray, predominantly calcareous and dolomite calcareous in part, chaotic bedded, occasional looks like Conglomerate.

1065.7-1066.8 MARBLE: gray to dark gray, predominantly dolomite, massive, possible Conglomerate.

1066.8-1068.8 MARBLE: dark gray to dark gray brown, predominantly dolomite Conglomerate, clasts up to 6cm, possible crinoid, possible brachiopod.

1068.8-1069.5 MARBLE: as above, clasts 1 to 5mm, rare up to 2cm.

1069.5-1071.0 MARBLE: brown gray, predominantly dolomite, common argillaceous in part, occasional vert fracture.

1071.0-1074.0 MARBLE: gray to occasional dark gray, minor orange in part, predominantly dolomite, massive, occasional chert and calcareous veins.

1074.0-1076.7 MARBLE: gray to white, predominantly dolomite, massive, occasional near vertical fracture, minor chert and calcareous veins.

1076.7-1077.9 MARBLE: gray and occasional yellow in part, predominantly dolomite, common irregular fracture, common yellow stain, massive.

1077.9-1103.0 MARBLE: gray to light gray, occasional dark gray, predominantly dolomite, massive, occasional weak bedded, Stromatoporoid at 1079.5m, occasional vertical fractures throughout with the majority occurring between 1082.5 to 1090.5m and 1094.5 to 1103.0m, best vuggy porosity occurs 1097.5 to 1099.5m, predominantly tight, minor poor vuggy and fracture porosity (1 to 2%), no shows.

1103.0-1110.0 MARBLE: gray, predominantly dolomite, bedded, occasional mottle, occasional cherty in part, occasional fractures toward base.

1110.0-1114.5 MARBLE: gray, predominantly dolomite, massive, common irregular fractures, minor vugs from 1111.5 to 1113.5m, occasional weak mottle in basal 1m, minor vugs associated with fractures, vugs are common filled or filled in part with hematite.

1114.5-1119.0 MARBLE: predominantly gray, occasional slightly yellow green, common mottle, common closed irregular closed fractures.

1119.0-1132.0 MARBLE: gray, massive, predominantly dolomite, occasional closed and open fracture, occasional bedded, 1118.9 to 1119.5 weak yellow staining.

1132.0-1137.0 gray, predominantly dolomite, occasional open and closed fracture, occasional yellow stain and rare associated vuggy porosity, poor vuggy and fracture porosity (1%), no shows.

1137.0-1153.2 gray to dark gray, predominantly dolomite, common planar smooth surface and occasional rough irregular fractures, hematite coatings on all fractures, rare yellow stain on fractures, very abundant fractures 1140.5 to 1142.5m, fractures predominantly vertical on sub angular 2 to 3cm spacing, common moderate angle fractures on sub angular 10 to 15cm spacing, occasional vugs, best vugs occur over interval 1142.5 to 1143.5m and 1149.5 to 1150.8m , poor fracture and vuggy porosity (1 to 2%), no shows.

1153.2-1162.0 MARBLE: gray, predominantly dolomite, massive, common cherty in part, minor vugs, minor fractures with fine dolomite crystals.

1162.0-1182.5 MARBLE: gray, predominantly dolomite and cherty in part, common fractures with hematite coatings, predominantly rare vugs and occasional occasional vugs over 1162.5 to 1163.5m, minor vugs 1169.0 to 1171.0m, common fractures over 1166.0 to 1167.2 and 1168.6 to 1172.7, predominantly tight with minor fracture and vuggy porosity (1 to 2%), no shows.

1182.5-1196.0 MARBLE: gray to dark gray, predominantly dolomite, occasional cherty in part, massive, rare open fractures, occasional closed fractures with white dolomite infill, rare vugs in incomplete vein infill.

1196.0 - 1218.0 MARBLE: dark gray to black, predominantly dolomite, common SHALEly in part, black colour possible high organic content, common SHALE laminated to thin bedded, occasional open fracture and occasional white hematite and yellow green mineral coatings, occasional closed fracture with white dolomite infill, core common breaks along SHALE laminated, minor Conglomerate or boudins uncertain, So=40 to 50', minor "S" fabrics.

1218.0-1226.1 MARBLE: gray to dark gray, predominantly dolomite, rare bedded, occasional grainstone in part, common closed fracture with dolomite infill.

1226.1-1228.5 MARBLE: gray to light gray, predominantly dolomite, occasional mottoled, occasional vugs 1226.0 to 1227.5, common vugs 1227.2 to 1227.5, vugs up to 5mm, vugs appear to be incomplete replacment and infill by dolomite of stringy calcareous mottles, minor open fracture with occasional hematite stain, hematite rare associated with vugs, rare stylolite, predominantly poor vuggy porosity (1 to 3%), minor fair vuggy porosity 1227.2 to 1227.5m (7 to 10%), no shows.

1228.5-1234.6 MARBLE: gray to light gray, predominantly calcareous, common mottle, common closed fracture at 40 to 50', with complete dolomite infill, So=45'.

1234.6-1256.2 MARBLE: light and dark gray bands, interbedded phylitte and predominantly calcareous marble, interbedded on the 1 to 2cm scale, occasional mottled and occasional massive.

1256.2-1266.8 MARBLE: gray to dark gray, predominantly dolomite, massive with minor dolomite veins, 1258.5 to 1260.5 common irregular fractures with hematite and rare yellow green mineral, occasional small vugs 1 to 2mm associated with fracturing.

1266.8-1308.5 MARBLE: light and dark gray bands, interbedded phylitte and predominantly calcareous marble, interbedded on the 1 to 2cm scale, occasional mottled and occasional massive,rare boudins& "S"fabrics.

1308.5-1318.0 MARBLE: gray and black, interbedded calcareous LIMESTONE marble and slightly calcareous black slate to phylitte, 1309.5 and 1310.5 chert nodule in 4 to 8cm wide dolomite veins, common "boudins", So=45', So = 70=80' toward base.

1318.0-1323.5 MARBLE: light gray to gray, predominantly calcareous, brecciated, has appearance of sub angular mottled grey and white LIMESTONE that has been partially sheared and brecciated, leaving the resulting texture.

1323.5-1325.5 MARBLE: black to dark gray, predominantly calcareous, abundant SHALE laminated and thin beds, unit is commonly folded in fairly open "C" folds, folds do not seem to share sub angular common fold plane, folding possible fault related rather than the result of sub angular regional deformation event.

TD = 1325.5m at 07-11-02; 2100